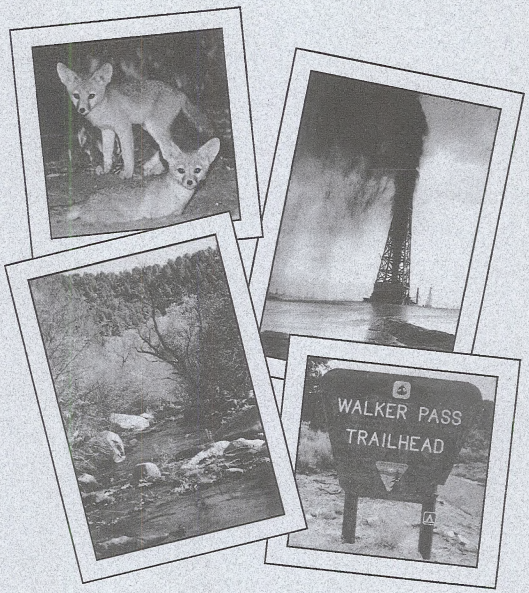
BLM LIBRARY
88045310

United States Department of the Interior
Bureau of Land Management
Caliente Resource Area

Draft

January 1993

Caliente
Resource Management Plan
and
Environmental Impact Statement



BLM Mission Statement

The Bureau of Land Management is responsible for the balanced management of Public Lands and resources and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield; a combination of uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness, and natural, scenic, scientific and cultural values.

Cover photographs
(Clockwise, from upper left)

San Joaquin Kit Fox - a Federally Endangered Species

The Lakeview Gusher in the Midway-Sunset Oilfield - March 15, 1910
(Bill Rintoul Collection)

Walker Pass Trailhead on the Pacific Crest Trail

South Fork of the Kern River

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225

BLM-CA-PT-92-015-1610

Printed on recycled paper

ID 88045310

HD
243
.C2
B35
1993

DRAFT

CALIENTE RESOURCE MANAGEMENT PLAN

AND

ENVIRONMENTAL IMPACT STATEMENT

U.S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

Ed Hastey
STATE DIRECTOR
CALIFORNIA

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
BAKERSFIELD DISTRICT OFFICE
FEDERAL BLDG., ROOM 311
800 TRUXTUN AVENUE
BAKERSFIELD, CALIFORNIA 93301-4782

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

1600
(CA-016.21)

Dear Reader:

Enclosed for your review and comment is the Bureau of Land Management's Draft Resource Management Plant and Draft Environmental Impact Statement for the Caliente Resource Planning Area. This document outlines a number of alternatives for managing the public lands in this area. The alternatives are designed to resolve the management issues which were identified during the early stages of the planning process.

Comments concerning the Plan and the adequacy of the Draft Environmental Impact Statement will be considered in preparing the Proposed Plan and Final Environmental Impact Statement. Public meetings will be held this winter for receiving comments. The dates, times and locations of the public meeting will be announced later. Please send your comments to:

Area Manager
Bureau of Land Management
4301 Rosedale Highway
Bakersfield, CA 93308-6136

Sincerely,

Ron Fellows
District Manager

Dedicated to the memory

of

Kenneth L. Volpe

who worked so tirelessly
to help people use and enjoy
their public lands, while
protecting the natural resources
he loved so much.

Contents

Page

Summary ... 1

Chapter 1 - Introduction ... 33

Purpose and Need ... 34

Planning Area Description ... 34

Goals ... 38

Planning Process ... 39
- Issues Selected for Analysis ... 40
- Planning Criteria ... 41
- Major Resources And Topics Addressed In The Plan ... 43
- Resources And Topics Considered But Dropped From Further Analysis ... 43
- Resource Descriptions ... 47
- Relation to Other Plans and Programs ... 48

Chapter 2 - Affected Environment ... 51

Air Quality ... 51
- Coast Management Area ... 51
- Valley Management Area ... 53
- South Sierra Management Area ... 54

Cultural Resources ... 54
- Coast Management ... 55
- Valley Management Area ... 56
- South Sierra Management Area ... 57

Forestry ... 57

Lands ... 58
- Coast Management Area ... 58
- Valley Management Area ... 59
- South Sierra Management Area ... 60

Livestock Grazing ... 61
- Coast Management Area ... 61
- Valley Management Area ... 62
- South Sierra Management Area ... 63

Minerals ... 63

Oil & Gas ... 68
- Coast Management Area ... 72
- Valley Management Area ... 74
- South Sierra Management Area ... 76

Paleontological Resources ... 76
- Coast Management Area ... 76
- Valley Management Area ... 76
- South Sierra Management Area ... 77

Recreation ... 77
- Coast Management Area ... 78
- Valley Management Area ... 78
- South Sierra Management Area ... 80

Vegetation 82
Coast Management Area 84
Valley Management Area 85
South Sierra Management Area 87

Water Resources 88
Coast Management Area 89
Valley Management Area 89
South Sierra Management Area 90

Wildlife 90
Coast Management Area 92
Valley Management Area 93
South Sierra Management Area 95

Chapter 3 - Alternatives 99
Alternative Formulation 99
Alternative Definitions 99

Management Guidance and Decisions Common to All Alternatives 100
Policy and Management Guidance 100
Resource Management Plan Alternative Components 105
Resource Area Guidance and Decisions Common to All Alternatives 106
Resource Area-Wide Objectives 106
Resource Area-Wide Allocations 107
Resource Area-Wide Management Actions 110

Coast Management Area 112
Guidance and Decisions Common to All Alternatives 112
Alternative 1 - No Action (Continuation of Present Management) 114
Alternative 2 - Natural Resource Protection Emphasis 118
Alternative 3 - Administrative Adjustments 125
Alternative 4 - Development Emphasis 132
Alternative 5 - Preferred Alternative 138
Rationale for the Preferred Alternative 144

Valley Management Area 145
Guidance and Decisions Common to All Alternatives 145
Alternative 1 - No Action (Continuation of Present Management) 147
Alternative 2 - Natural Resource Protection 152
Alternative 3 - Administrative Adjustments 159
Alternative 4 - Development Emphasis 166
Alternative 5 - Preferred Alternative 171
Rationale for the Preferred Alternative 178

South Sierra Management Area 180
Guidance and Decisions Common to All Alternatives 180
Alternative 1 - No Action (Continuation of Present Management) 183
Alternative 2 - Natural Resource Protection 187
Alternative 3 - Administrative Adjustments 195
Alternative 4 - Development Emphasis 204
Alternative 5 - Preferred Alternative 210
Rationale for the Preferred Alternative 219

Chapter 4 - Environmental Consequences 221
Introduction 221
Analysis Assumptions 221
General Assumptions 222
Reasonably Foreseeable Development Scenarios 222
Impact Topics Selected for Analysis 238

Environmental Consequences 239

Alternative 1 - No Action (Continuation of Present Management) 239
Air Resources 239
Land Tenure Adjustment 243
Land Use Authorizations 245
Livestock Grazing Management 246
Mineral Resource Development 251
Oil and Gas Development 254
Recreation 261
Vegetation 263
Water Resources 276
Wildlife 279

Alternative 2 - Resource Protection Emphasis 299
Air Resources 299
Land Tenure Adjustment 300
Land Use Authorizations 301
Livestock Grazing Management 302
Mineral Resource Development 306
Oil and Gas Development 308
Recreation 312
Vegetation 314
Water Resources 320
Wildlife 321

Alternative 3 - Administrative Adjustment 331
Air Resources 331
Land Tenure Adjustment 332
Land Use Authorizations 333
Livestock Grazing Management 334
Mineral Resource Development 337
Oil and Gas Development 338
Recreation 341
Vegetation 343
Water Resources 346
Wildlife 347

Alternative 4 - Development Emphasis 355
Air Resources 355
Land Tenure Adjustment 356
Land Use Authorizations 357
Livestock Grazing Management 357
Mineral Resource Development 359
Oil and Gas Development 360
Recreation 364
Vegetation 366
Water Resources 372
Wildlife 372

Alternative 5 - Preferred 384
Air Resources 384
Land Tenure Adjustment 384
Land Use Authorizations 385
Livestock Grazing Management 386
Mineral Resource Development 388
Oil and Gas Development 390
Recreation 392
Vegetation 394
Water Resources 396
Wildlife 397

Short Term Uses vs. Long Term Productivity 404

Irreversible or Irretrievable Commitments of Resources 405

Chapter 5 - Consultation and Coordination 407
Overview of the Process 407
Distribution of the Draft RMP/EIS 407

Preparers 411

Acronyms 413

Glossary 414

References 433

Appendices 441
Appendix A - Areas of Critical Environmental Concern 442
Appendix B - Biological Resources 495
Appendix C - Lands 513
Appendix D - Livestock Grazing 550
Appendix E - Minerals 584
Appendix F - Mitigation Measures 607
Appendix G - Oil and Gas 633
Appendix H - Recreation 695
Appendix I - Standard Operation Procedures 733
Appendix J - Carrizo Plain Natural Area Interagency Cooperative Management Plan 741
Appendix K - Walker Pass Coordinated Resource Management Plan 787
Appendix L - Cultural Resource Management 823

Index 829

Tables

Table S-1 Summary of Allocations 5

Table S-2 Summary of Impacts 14

Table 1 State National Ambient Air Quality Standards 52

Table 2 Maximum Allowable Pollutant Concentration Increases 53

Table 3 Federal Mineral Estate in Caliente Resource Area 64

Table 4 Federal Lands Closed to Mineral Location 64

Table 5 Federal Lands Closed to Mineral Leasing and Sale 66

Table 6 Metallic Mineral Production 67

Table 7 Oil and Gas Production and Reserves 69

Table 8 Coast ACECs - No Action Alternative 115

Table 9 Coast ACECs - Resource Protection Alternative 120

Table 10 Coast ACECs - Administrative Adjustment Alternative 126

Table 11 Coast ACECs - Development Emphasis Alternative 133

Table 12 Coast ACECs - Preferred Alternative 139

Table 13 Valley ACECs - No Action Alternative 148

Table 14 Valley ACECs - Resource Protection Alternative 154
Table 15 Valley ACECs - Administrative Adjustment Alternative 160
Table 16 Valley ACECs - Development Emphasis Alternative 167
Table 17 Valley ACECs - Preferred Alternative 172
Table 18 South Sierra ACECs - No Action Alternative 184
Table 19 South Sierra ACECs - Resource Protection 188
Table 20 South Sierra ACECs - Administrative Adjustment 197
Table 21 South Sierra ACECs - Development Emphasis 205
Table 22 South Sierra ACECs - Preferred Alternative 211
Table 23 Grazing Management Levels for Unalloted Parcels 227
Table 24 Mineral Occurrences and Production 229
Table 25 ACECs and Benefitting Plants (No Action) 267
Table 26 ACECs and Benefitting Wildlife (No Action) 285
Table 27 ACECs and Benefitting Plants (Alternatives 2-5) 316
Table 28 ACECs and Benefitting Wildlife (Alternatives 2-5) 323
Table G-1 Acres of Oil & Gas Potential 642
Table G-2 Acres of Oil & Gas Potential by County 646
Table G-3 Estimates of Undiscovered Reserves 647
Table G-4 Historical Prospect Drilling Activity 650
Table G-5 Expected Seismic Activity 654
Table G-6 Number of Wells in Top Fields 655
Table G-7 Oil & Gas Fields with Federal Mineral Estate 656
Table G-8 Expected Applications for Permit to Drill 658
Table G-9 Projected Development Activity - Midway Sunset 659
Table G-10 Projected Development Activity 660
Table G-11 Expected Drilling Activity 662
Table G-12 Expected Gross Surface Disturbance 663
Table G-13 Expected Net Surface Disturbance 663

Figures

Figure S-1 Oil & Gas Management Class by Alternative 28
Figure S-2 Areas Of Critical Environmental Concern by Alternative 30
Figure S-3 Land Tenure Adjustment by Alternative 31

Figure S-4 Livestock Grazing by Alternative 32
Figure 1 Public Lands by County 36
Figure 2 BLM Administered Lands 58
Figure 3 Selective Management Categories 61
Figure 4 Lands Grazed - Coast 62
Figure 5 Lands Grazed - Valley 62
Figure 6 Lands Grazed - South Sierra 63
Figure 7 Federal Land Closed to Mineral Location 65
Figure 8 Oil and Gas Leases Held by Production 70
Figure 9 Coast ACECs - No Action Alternative 114
Figure 10 Coast Grazing - No Action Alternative 115
Figure 11 Coast ACECs - Resource Protection Alternative 118
Figure 12 Coast Grazing - Resource Protection Alternative 122
Figure 13 Coast ACECs - Administrative Adjustment Alternative 125
Figure 14 Coast Grazing - Administrative Adjustment Alternative 128
Figure 15 Coast ACECs - Development Emphasis Alternative 132
Figure 16 Coast Grazing - Development Emphasis Alternative 135
Figure 17 Coast ACECs - Preferred Alternative 138
Figure 18 Coast Grazing - Preferred Alternative 141
Figure 19 Valley ACECs - No Action Alternative 147
Figure 20 Valley Grazing - No Action Alternative 149
Figure 21 Valley ACECs - Resource Protection Alternative 152
Figure 22 Valley Grazing - Resource Protection Alternative 156
Figure 23 Valley ACECs - Administrative Adjustment Alternative 159
Figure 24 Valley Grazing - Administrative Adjustment Alternative 163
Figure 25 Valley ACECs - Development Emphasis Alternative 166
Figure 26 Valley Grazing - Development Emphasis Alternative 169
Figure 27 Valley ACECs - Preferred Alternative 171
Figure 28 Valley Grazing - Preferred Alternative 176
Figure 29 South Sierra ACECs - No Action Alternative 183
Figure 30 South Sierra Grazing - No Action Alternative 185
Figure 31 South Sierra ACECs - Resource Protection Alternative 187

Figure 32 South Sierra Grazing - Resource Protection Alternative 191
Figure 33 South Sierra ACECs - Administrative Adjustment Alternative 195
Figure 34 South Sierra Grazing - Administrative Adjustment Alternative 201
Figure 35 South Sierra ACECs - Development Emphasis Alternative 204
Figure 36 South Sierra Grazing - Development Emphasis Alternative 206
Figure 37 South Sierra ACECs - Preferred Alternative 210
Figure 38 South Sierra Grazing - Preferred Alternative 215
Figure 39 Oil and Gas Occurrence Potential 234
Figure 40 Land Available for Disposal 243
Figure 41 Grazing Season Restrictions - No Action 247
Figure 42 Changes in Grazing - No Action 250
Figure 43 Oil & Gas Management by Potential - No Action 254
Figure 44 Land Available for Disposal 300
Figure 45 ROW Avoidance/Exclusion Areas - Resource Protection 301
Figure 46 Grazing Season Restrictions - Resource Protection 303
Figure 47 Changes in Grazing - Resource Protection 305
Figure 48 Oil & Gas Management by Potential - Resource Protection 308
Figure 49 Land Available for Disposal 332
Figure 50 ROW Avoidance/Exclusion Areas - Administrative Adjustment 333
Figure 51 Grazing Season Restrictions - Administrative Adjustment 335
Figure 52 Changes in Grazing - Administrative Adjustment 337
Figure 53 Oil & Gas Management by Potential - Administrative Adjustment 338
Figure 54 Land Available for Disposal 356
Figure 55 ROW Avoidance/Exclusion Areas - Development Emphasis 357
Figure 56 Changes in Grazing - Development Emphasis 359
Figure 57 Oil & Gas Management by Potential - Development Emphasis 360
Figure 58 Land Available for Disposal 385
Figure 59 ROW Avoidance/Exclusion Areas - Preferred 385
Figure 60 Grazing Season Restrictions - Preferred 387
Figure 61 Changes in Grazing - Preferred 389
Figure 62 Oil & Gas Management by Potential - Resource Protection 390
Figure G Proposed Oil & Gas Mgmt for High and Moderate Potential 635

Figure G-1 Oil & Gas Cumulative Production by Neogene Depocenter 643
Figure G-2 Production Contribution of Reservoir Rocks by Age 644
Figure G-3 Monterey Shale Diagenesis 645
Figure G-4 Surface Management in Areas of High Oil & Gas Potential 646
Figure G-5 1990 Oil Prices 647
Figure G-6 Oil Price Trend (Non-OPEC) 1980 - 2000 648
Figure G-7 Prospect Wells Drilled 649
Figure G-8 Federal Prospect Wells 649
Figure G-9 Wildcat Wells Drilled 650
Figure G-10 1989 - 1990 Seismic Exploration 651
Figure G-11 New Field Discoveries 652
Figure G-12 Ultimate Reserves 652
Figure G-13 Mean/Median New Field Size 653
Figure G-14 Field Constraints 654
Figure G-15 1989 Oil and Gas Production 654
Figure G-16 Approved APDs 1985 - 1990 655
Figure G-17 Midway Sunset Wells Drilled 658
Figure G-18 Cogeneration Capabilities 660
Figure G-19 Oil and Gas Lease Form 691

Maps

Map 1 Resource Area Location 35
Map 2 Management Areas 37
Map 3 Threatened & Endangered Species Conservation Areas 512

Summary

Introduction

This Resource Management Plan is being prepared to guide the BLM in its management of the Caliente Resource Area. The plan covers 570,000 acres of public land and 939,000 acres of Federal mineral estate. The Resource Area is located in six south central California counties: Kern, Tulare, Kings, San Luis Obispo, Santa Barbara and Ventura Counties.

The objective of resource management planning is to maximize resource values and multiple use of the public lands through a rational, consistently applied set of procedures. Resource management plans are designed to guide and control future management actions as well as the development of subsequent and more detailed plans.

The thrust of this Resource Management Plan is twofold. One aspect of the effort is to address the opportunities to manage the sensitive resources and open space values of these lands in concert with the enhancement of recreation, grazing, and mineral development. Another is to address the potential for improving management effectiveness and efficiency through adjustment of the scattered land ownership pattern.

Five alternatives were developed in order to meet these objectives. They are: No Action; Natural Resource Protection Emphasis; Administrative Adjustment; Development Emphasis; and the Preferred alternative.

Management Areas

To facilitate analysis and development of plan alternatives, the planning area was divided into three separate management areas. The division is generally along roads and legal subdivisions, allowing easy description of the boundaries. Each management area contains a unique blend of resources and issues. The following discussion provides a summary of the allocations developed for each of the management areas.

Coast Management Area

The Coast Management Area includes 19,000 acres of public land, and an additional 52,000 acres of Federal reserved mineral estate in San Luis Obispo, Santa Barbara, and Ventura counties. Most of the public land, including the largest parcels, is scattered in small tracts, ranging from 40 to 500 acres in size; only a handful of tracts are as large as a thousand or more acres. Most lie northeast of Santa Maria and San Luis Obispo.

Resources on these lands are difficult to manage, as they may easily be impacted by activities on adjacent lands. Resource development is limited by the small size, as well as surrounding land uses. Another important concern is that many or these parcels lack public and administrative access.

The obvious solution to these problems is to dispose of these parcels, perhaps trading for land in other areas where the BLM presently has more extensive holdings. In this way new recreational opportunities can be provided, and the Bureau's ability to protect and enhance sensitive resources is improved. But what is not so obvious is the fact that some of these parcels may have sensitive biological or cultural resources or potential mineral values; retention of these lands, even if they are inaccessible to the public, must be considered.

Public lands within the Coast Management Area are not known to contain any Federally listed threatened or endangered species. Habitat for some is present, and candidates for listing are known from several parcels. Oil and gas potential for the area is high to moderate; most of the development is confined to subsurface mineral estate in the Sespe area.

These lands generally receive limited recreational use due to their inaccessibility and apparent lack of outstanding features. Livestock grazing occurs throughout most of the area, but is not dependent upon public lands.

The Coast Management area includes the Pt. Sal Area of Critical Environmental Concern (ACEC) and portions of the Offshore Rocks and Islands ACEC. These are proposed for retention under all alternatives. Up to six additional areas were proposed for ACEC designation under one or more alternatives. The Preferred Alternative recommended four additions encompassing a total of 2,500 acres: Salinas River, Tierra Redonda, Frog Pond Mtn, and Cypress Mtn. Resource values considered included uncommon plant communities (biodiversity), wildlife, minerals, unique geologic formations, and paleontological values. The level of protection proposed for these lands varies by alternative.

A maximum of 18,000 acres were identified as available for disposal under the Administrative Adjustment Alternative. If all lands containing resources of significance were retained, this number would be pared back to 7,000 acres, which occurs under the Resource Protection Alternative. Minimal acreages were considered for acquisition; these lands were generally associated with ACECs. *Note: Land acquisition is referred to throughout this document. This is done in order to prioritize lands, should they be placed on the market and should acquisition funding be available. It is <u>not</u> the intent of the BLM to force the sale of any of these lands, or to buy from an unwilling seller.*

There are seven livestock grazing allotments in the management area. Although a reduction to four allotments was considered in the Resource Protection Alternative, it was felt that management at current levels was compatible with other resources, and slight modifications in management as described under the Preferred Alternative could resolve any problems.

Like grazing, oil and gas development does not seem to be a major concern in this area, due to a lack of major resource conflicts and a lower potential for development. The Preferred Alternative would increase the area closed to leasing from 2,000 acres to 2,080 acres by closing Pt. Sal. All remaining lands under the Preferred Alternative would remain open for leasing, although leasing on 17,000 acres would be subject to major constraints.

Recreation issues were generally insignificant. A no shooting zone was considered in one area in order to improve public safety. The Upper Calf Canyon area was considered for an Off Highway Vehicle (OHV) use area in the Development Emphasis Alternative. Opportunities for dispersed recreation would increase with improved access.

Valley Management Area

The Valley Management Area is to be managed for continued oil and gas production and livestock grazing, as well as the protection and recovery of threatened and endangered species. The area includes the southern San Joaquin Valley, and the Carrizo Plain. There are approximately 313,000 acres of public land and an additional 204,000 acres of Federal reserved mineral split estate lands. It includes portions of Tulare, Kings, San Luis Obispo, Santa Barbara, and Kern counties.

Most of the public land is found in the Carrizo Plain and Caliente Mountains of eastern San

Luis Obispo County, extending east across the Temblor Mountains between Maricopa and McKittrick, in Kern County. Extensive oilfields and development characterize the Maricopa - McKittrick area. The vast majority of the management area is habitat for threatened or endangered species.

The Carrizo Plain Natural Area is the site of a cooperative venture with the California Department of Fish and Game and The Nature Conservancy. Its purpose is in part to protect and restore natural values. This area has the potential not only to benefit natural resources, but to provide interpretive, educational, and recreational opportunities to a large population.

The Valley Management area includes the San Andreas Fault Scarp, Elkhorn Plain, Goose Lake, Soda Lake, and Chico Martinez ACECs. These are proposed for continued ACEC protection under all alternatives. In four alternatives, three of the above ACECs would be incorporated into a larger Carrizo ACEC. Up to six additional areas were proposed for ACEC designation under one or more alternatives. The Preferred Alternative recommended four additions encompassing a total of 120,000 acres: Carrizo, Lokern, Alkali Sink, and Blue Stone Ridge. These ACECs were to be managed primarily for threatened and endangered species values, along with biodiversity and cultural resources. The level of management proposed for these lands varies by alternative.

A maximum of 26,000 acres were identified as available for disposal under the Administrative Adjustment Alternative. More lands were not considered because of the outstanding resource values (oil and gas, threatened or endangered plants and animals) present on so many. One alternative limited the availability of lands for disposal to 4,000 acres. The Carrizo Plain is a primary location for land acquisition. So too are the Lokern and Buena Vista Valley areas, which were identified in order to increase protection to sensitive species.

There are 51 livestock grazing allotments in the management area. In order to minimize conflict with threatened and endangered species, a reduction to 9 allotments was considered. The Preferred Alternative recommended 50 allotments, with significant constraints necessary to protect the listed species.

Oil and gas development is a major concern in this area. Although only about 13% of development is on Federal mineral estate, this amounts to a significant level of production. The Preferred Alternative would not close any lands to leasing. There is only a difference of 6,000 acres in the lands available for leasing under major constraints in the No Action (411,000 acres) and Preferred (417,000 acres) Alternatives. All remaining lands would remain open for leasing.

Recreation issues are not a major concern in the Valley Management Area, although opportunities exist in the Carrizo Plain. No shooting zones were considered in the Carrizo and Poso Creek areas for safety reasons. Also, a Backcountry Byway was considered for the Carrizo area. The Carrizo Plain Natural Area Plan (Appendix J) would be adopted as the activity plan for that area, providing increased interpretive opportunities.

South Sierra Management Area

The South Sierra Management Area includes 238,000 acres of public land. In addition, there are approximately 195,000 acres of Federal reserved mineral estate. The management area lies within eastern Kern and Tulare counties. Most of the public lands are found in large blocks around Isabella Lake, Chimney Peak, and the Three Rivers area.

The South Sierra Management Area differs sharply from the other two management areas. There are few Federally listed threatened or

endangered species in the area. There is no oil or gas development. Recreational activities abound in the area, from OHV use to hiking to rafting. Livestock grazing is an important use, and there is scattered mining activity.

The South Sierra Management Area includes the Blue Ridge and Piute Cypress ACECs. These are proposed for continued ACEC protection under all alternatives. Up to nine additional areas were proposed for ACEC designation under one or more alternatives. The Preferred Alternative recommended four additions encompassing a total of 51,000 acres: Case Mountain, Walker Pass, Erskine Creek, and Horse Canyon / Sand Canyon. These ACECs were to be managed for a variety of values, including cultural and paleontological resources, wildlife, and sensitive vegetation. The level of protection proposed for these lands varies by alternative.

A maximum of 21,000 acres were identified as available for disposal under the Administrative Adjustment Alternative. More lands were not considered because most of the acreage falls within large blocks of land, and because of resource values on the scattered tracts. One alternative limited the availability of lands for disposal to 12,000 acres. The ACECs and the lower Kern River are targets for land acquisition, should there be willing sellers and adequate funding.

There are 53 livestock grazing allotments in the management area. There are few conflicts with threatened or endangered species, so solutions to management problems were devised without having to consider substantial reductions.

Oil and gas development is not an issue in this area. The area has some geothermal potential, and the different alternatives address how exploration and development would be handled.

Recreation is a primary focus for the southern Sierras. Along the North Fork of the Kaweah River, consideration was given to development of a campground, eliminating dispersed camping, development of picnic facilities, and more. In the Keyesville area, the following ideas were considered under one or more alternatives: development of a campground, disallowing dispersed camping, addition of a new rafting launch site, emphasizing mountain bikes as the primary use, elimination of shooting, and elimination of OHV use. A Backcountry Byway was considered for the Kelso Valley and Chimney Peak areas.

Table S-1

COMPARATIVE SUMMARY OF ALLOCATIONS

This table includes those resources and uses that were the focus of the majority of allocations. It provides a quick comparison between the proposals included in each of the alternatives described in Chapter 3. This information represents the totals for all management areas. The impacts to the primary resources and uses within the Caliente Resource Area are summarized on Table S-2.

RESOURCE/USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
ACECs	9 ACECs 19,000 acres Few use restrictions. 1 ACEC closed to oil & gas leasing; 5 open subject to major constraints.	28 ACECs 293,200 acres Stringent restrictions. 23 ACECs closed to oil & gas leasing; 5 open subject to major constraints.
LAND TENURE ADJUSTMENT	40,000 acres of public land are available for disposal w/emphasis on exchange and subsequent acquisition at Carrizo Plain and other lands with high resource values. Consider disposal of lands classified as critical or essential condor habitat only after consultation with USF&WS. Acquire land that might facilitate management, including WSA inholdings.	26,000 acres of public land are available for disposal with emphasis on exchange. Acquisition shall target lands with high resource values. Retain lands classified as critical or essential condor habitat until USF&WS removes the classification. Retain lands at Hopper Mountain as condor habitat. Parcels in the Lake Isabella area returned to BLM jurisdiction may be considered for transfer to the USFS.

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
19 ACECs 198,600 acres	16 ACECs 191,500 acres	19 ACECs 218,300 acres
Moderate use restrictions.	Light to moderate use restrictions.	Moderate use restrictions.
2 ACECs closed to oil & gas leasing; 17 open subject to major constraints.	1 ACEC closed to oil and gas leasing; 1½ are open subject to major constraints; the remainder are open under standard terms & conditions.	4½ ACECs closed to oil & gas leasing; 13½ are open subject to major constraints; 1 is open subject to minor constraints.
65,000 acres of public land are available for disposal with emphasis on exchange.	60,000 acres of public land are available for disposal with emphasis on exchange.	55,000 acres of public land are available for disposal with emphasis on exchange.
Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Retain lands classified as critical condor habitat. Consider disposal of essential condor habitat only after consultation with USF&WS.	Lands classified as critical condor habitat will be considered for disposal only after consultation with USFWS.	Same as Alternative 3.
Acquire lands within the Buena Vista Valley with high resource values. Lands in Sec. 28, T. 32 S., R. 24 E., M.D.M., and Sec. 9, T. 11 N., R. 24 W., S.B.M. of the Buena Vista Valley are available for disposal, although all other lands in that area shall be retained.	Buena Vista Valley - lands in Sec. 28, T. 32 S., R. 24 E., M.D.M., and Sec. 9, T. 11 N., R. 24 W., S.B.M. are available for disposal. All other lands shall be retained.	
Acquire lands with high resource values in the Keyesville and Erskine Ck areas.		
	Lands within the Bittercreek NWR shall be retained or withdrawn to USFWS.	
Lands in the Lake Isabella area returned to BLM jurisdiction may be considered for disposal.	Same as Alternative 3.	

RESOURCE/USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
LAND USE AUTHORIZATIONS	Acquire public access to lands with significant public interest on a case-by-case basis.	Same as Alternative 1.
	Acquire public pedestrian and administrative vehicular access to Point Sal.	Same as Alternative 1.
	Acquire administrative access to Rusty Peak, Tierra Redonda, and Cypress Mountain.	Same as Alternative 1.
	Acquire non-motorized public access to Cypress Mountain.	Same as Alternative 1.
	Acquire administrative and public vehicular access to Goose Lake and Duck Pond.	Same as Alternative 1.
	Acquire administrative access to Blue Stone Ridge/Orchard Peak and Hubbard Hill/Freeborn Mountain.	Same as Alternative 1.
	Utility routes have not been designated.	Designated utility corridors are those delineated in the Western Regional Corridor Study of 1986.
	ROW's are authorized on a case-by-case basis.	ROW avoidance areas include lands identified for disposal, 14 ACEC's, wild and scenic rivers, Ker 311 site, Granite Cave site, and Walker Pass NHL. ROW exclusion areas include WSA's, wilderness areas, and 13 ACEC's.
	Proposals for wind energy development and new communication sites are considered on a case-by-case basis.	Designation of new wind energy and communication sites will not be considered.
		Acquire public access to Case Mountain; allow access by permit only.

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Designated utility corridors are those delineated in the WRCS of 1986.	Designated utility corridors are those delineated in the WRCS of 1986. New ROW corridors are also designated.	Designated utility corridors are those delineated in the WRCS of 1986.
ROW avoidance areas include lands identified for disposal, ACEC's, Ker 311 site, Granite Cave site, Walker Pass NHL, and wild and scenic rivers.	ROW avoidance areas include ACEC's and wild and scenic rivers.	ROW avoidance areas include ACEC's, wild and scenic rivers, Ker 311 site, Granite Cave, Walker Pass NHL, and lands identified for disposal.
ROW exclusion areas include WSA's and wilderness areas.	Same as Alternative 3.	Same as Alternative 3.
Proposals for wind energy development may be considered on lands outside of ACEC's, SRMA's, wilderness areas and WSA's.	Proposals for wind energy will be considered on a case-by-case basis.	Same as Alternative 3.
New communication sites will be considered on a case-by-case basis.	New communication sites will be considered at Tierra Redonda Mountain and Orchard Peak. Other sites will be considered on a case-by-case basis.	Same as Alternative 3.
Acquire public access to Case Mountain and Milk Ranch Peak.	Acquire public access to Milk Ranch Peak and Case Mountain.	Acquire public access to Case Mountain and manage according to ACEC prescriptions. Acquire public access to Milk Ranch Peak.
Lands in the Kettleman Hills are unavailable for R&PP lease.		Same as Alternative 3.
Water diversions are prohibited at Kernville Hotsprings & Erskine Ck.		Same as Alternative 3.

RESOURCE/USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
LIVESTOCK GRAZING	109 allotments	96 allotments
	452,780 acres	431,993 acres
	Additional mulch requirements (500#) & seasonal restrictions for T&E species; new lands available for grazing.	High mulch requirements (700#) & broad seasonal restrictions for T&E species; no grazing in new areas.
MINERALS	384,000 acres open for geothermal leasing	330,000 acres open for geothermal leasing
	513,000 acres open for geothermal leasing with major constraints	408,000 acres open for geothermal leasing with major constraints
	41,000 acres closed to geothermal leasing	201,000 acres closed to geothermal leasing
	420,000 acres open for leasing of solid minerals	325,000 acres open for leasing of solid minerals
	469,000 acres open for leasing of solid minerals with major constraints	438,000 acres open for leasing of solid minerals with major constraints
	49,000 acres closed to leasing of solid minerals	174,000 acres closed to leasing of solid minerals
	885,000 acres open for mineral location	858,000 acres open for mineral location
	53,000 acres closed to mineral location	80,000 acres closed to mineral location
	438,000 acres open for sale of mineral materials	362,000 acres open for sale of mineral materials
	453,000 acres open for sale of mineral materials with major constraints	501,000 acres open for sale of mineral materials with major constraints
	47,000 acres closed to sale of mineral materials	75,000 acres closed to sale of mineral materials
OIL & GAS	385,000 acres open for oil & gas leasing	329,000 acres open for O & G leasing
	513,000 acres open for O&G leasing with major constraints	407,000 acres open for O&G leasing with major constraints
	41,000 acres closed to O&G leasing	200,000 acres closed to O&G leasing

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
109 allotments	110 allotments	109 allotments
452,780 acres	456,213 acres	452,780 acres
Additional mulch requirements (500#') & seasonal restrictions for T&E species; new lands available for grazing.	Limited mulch requirements; new lands available for grazing.	Additional mulch requirements (500#') & seasonal restrictions for T&E species; new lands available for grazing.
340,000 acres open for geothermal leasing	816,000 acres open for geothermal leasing	339,000 acres open for geothermal leasing
555,000 acres open for geothermal leasing with major or minor constraints	82,000 acres open for geothermal leasing with major constraints	553,000 acres open for geothermal leasing with major/minor constraints
42,000 acres closed to geothermal leasing	41,000 acres closed to geothermal leasing	44,000 acres closed to geothermal leasing
358,000 acres open for leasing of solid minerals	826,000 acres open for leasing of solid minerals	390,000 acres open for leasing of solid minerals
459,000 acres open for leasing of solid minerals with major constraints	63,000 acres open for leasing of solid minerals with major constraints	406,000 acres open for leasing of solid minerals with major constraints
121,000 acres closed to leasing of solid minerals	49,000 acres closed to leasing of solid minerals	142,000 acres closed to leasing of solid minerals
879,000 acres open for mineral location	882,000 acres open for mineral location	880,000 acres open for mineral location
58,000 acres closed to mineral location	55,000 acres closed to mineral location	57,000 acres closed to mineral location
376,000 acres open for sale of mineral materials	886,000 acres open for sale of mineral materials	400,000 acres open for sale of mineral materials
511,000 acres open for sale of mineral materials with major constraints	6,000 acres open for sale of mineral materials with major constraints	486,000 acres open for sale of mineral materials with major constraints
52,000 acres closed to sale of mineral materials	47,000 acres closed to sale of mineral materials	52,000 acres closed to sale of mineral materials
340,000 acres open for oil & gas leasing	816,000 acres open for oil & gas leasing	340,000 acres open for O & G leasing
17,000 acres open with minor constraints		26,000 acres with minor constraints
539,000 acres open for O&G leasing with major constraints	82,000 acres open for O&G leasing with major constraints	528,000 acres open for O&G leasing with major constraints
42,000 acres closed to O&G leasing	41,000 acres closed to O&G leasing	44,000 acres closed to O&G leasing

Table S-1

RESOURCE/USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
RECREATION	Manage for dispersed camping.	Several areas are closed to camping, or camping is limited to designated sites. North Fork of the Kaweah and Keyesville are closed to camping except by permit. Develop picnic areas at North Fork of the Kaweah and Keyesville. Improve mountain bike opportunities at Keyesville; limit OHVs in the area.
	Vehicles limited to designated routes of travel. 3 ACECs closed to OHVs.	Vehicles are limited to designated routes of travel. 4 ACECs closed to OHVs. 3 Backcountry Byways designated. Poso Creek, Painted Rock, Soda Lake, Point Sal, Plute Cypress ACEC, Keyesville, and 280 acres in T. 27 S., R. 10 E., MDB&M, are closed to shooting. Provide an additional low water raft launch site on the Kern River.
	Acquire public non-motorized access to Cypress Mtn, and foot access to Pt. Sal.	Same as Alternative 1. Also acquire public access to Irish Hills and foot access (by permit only) to Case Mtn. Develop CMA for controlled access to Chico Martinez.
	Designate sites for dog trials and a shooting range in the Temblor Mtns.	Same as Alternative 1.
	Few restrictions on equestrian use.	Greatest restrictions on equestrian use.

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
Fewer restrictions on dispersed camping compared to Alternative 2. North Fork of the Kaweah and Keyesville are closed to camping except by permit; picnic areas will be developed at both sites.	Fewer restrictions on dispersed camping than Alternative 2. Develop campgrounds at Keyesville and North Fork of the Kaweah. Close to dispersed camping, except along the Kern River Corridor. Upgrade high use areas along the North Fork of the Kaweah.	Fewer restrictions on dispersed camping than Alternative 2. Develop a campground at Keyesville and a picnic area along the North Fork of the Kaweah. Close to dispersed camping, except by permit.
	Provide OHV and mountain bike opportunities at Keyesville.	Improve mountain bike opportunities at Keyesville; limit but still allow some OHVs in the area.
Same as Alternative 2, except that more routes are designated.	Same as Alternative 2, except that more routes are designated. 2 OHV potential use areas are identified.	Same as Alternative 3.
Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Poso Creek, Painted Rock, Soda Lake, most of Keyesville, and 280 acres in T. 27 S., R. 10 E., MDB&M, are closed to shooting.	Poso Creek, Painted Rock, a small area around Soda Lake, and most of Keyesville are closed to shooting.	Poso Creek, Painted Rock, Soda Lake, and most of Keyesville are closed to shooting.
	Same as Alternative 2.	Same as Alternative 2.
Same as Alternative 1. Also acquire public access to Case Mtn, Irish Hills, and Milk Ranch Peak. Develop a CMA for controlled public access to Chico Martinez.	Same as Alternative 1. Also acquire public access to Case Mtn and Milk Ranch Peak. Develop a CMA for controlled public access to Chico Martinez.	Same as Alternative 4.
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Minor restrictions on equestrian use.	Fewest restrictions on equestrian use.	Same as Alternative 3.

Table S-2

COMPARATIVE SUMMARY OF IMPACTS

RESOURCE/ USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
AIR QUALITY	The amount of fugitive dust, PM_{10}, contributed from paved, unpaved and open sources on managed lands is negligible, estimated at < 1%, a measurable but marginal impact.	Impacts on air quality due to O&G and fugitive dust generating activity on managed lands would be similar to those described for Alternative 1.
	Emissions due to O&G operations would have a significant effect in the immediate area of activity but would be of no significance air basin wide because of new source rules.	This alternative has the least impact on emissions from development or operations following land disposal, mineral exploration because of fewer acres open.
	Development/operations following land disposal, mineral extraction, etc. would result in an increased PM_{10} contribution in the SJVAB. Emission generation would be proportionate to the amount of development/operations but regulated by dust control rules, and therefore slightly to moderately significant.	The degree of impact would be as described for Alternative 1.
LAND TENURE ADJUSTMENT	Approximately 39,000 acres of public land would be considered for disposal through exchange or sale. Acquisitions would target high resource values. The Bureau's ability to manage these lands would be increased due to their consolidation into larger blocks. Privatization of the public land may increase opportunities to meet some rural residential growth needs, while impacts to open space are expected to be slight.	Same impacts as in Alternative 1 except that an estimated 19,500 acres of public land may eventually be disposed under this alternative. Most lands with significant resources are unavailable for disposal. There would be fewer opportunities to meet rural growth needs. Open space would be retained, but difficult to manage.
LAND USE AUTHORIZATIONS	The need for land use authorizations is expected to increase as the nation's energy needs increase or community expansion and rural residential development increases with the growth in population. When these actions occur within Federally listed species habitat, there may be delays or additional costs borne by the applicant to mitigate or compensate for disturbance or habitat loss.	Same impacts as in Alternative 1. Due to constraints on public lands with high resource values, the number of land use applications may also be reduced by 20%. Land uses would be constrained in right-of-way exclusion and avoidance areas (379,300 acres). Mitigation costs would increase. Designation of utility corridors may reduce right-of-way proliferation.

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
Impacts on air quality would be similar to those described for Alternative 1.	Impacts on air quality due to oil and gas activity would be similar to those described for Alternative 1.	Impacts on air quality would be similar to those described for Alternative 1.
Same as Alternative 1.	Impacts due to fugitive dust emissions would be similar to Alternative 1, but with a slight positive impact because of the designation of OHV use areas where this activity would be more concentrated and thus the related generation of PM_{10} controlled.	Same as Alternative 1.
Same as Alternative 1.	This alternative has the potential to have the most impact with 712,000 acres open for leasing of solid minerals and 80,000 acres available for disposal. A moderate to significant impact in the generation of PM_{10} could effect air basin air quality.	Same as Alternative 1.
Same impacts as in Alternative 1 except that an estimated 48,750 acres of public land may eventually be disposed under this alternative. Most lands with significant resources are unavailable for disposal. There would be a greater ability to meet rural growth needs and to improve manageability of public lands.	Same impacts as in Alternative 3 with an estimated 45,000 acres of public land that may be disposed under this alternative.	Same impacts as in Alternative 1, with an estimated 39,750 acres of public land that may eventually be disposed under this alternative. Most lands with significant resources are unavailable for disposal.
Impacts similar to Alternative 1. In addition, land uses would be constrained where right-of-way exclusion and avoidance areas have been identified (323,300 acres). Mitigation costs would increase slightly. This may also reduce the number of land use applications by 15%.	Impacts similar to Alternative 1. In addition, land uses would be constrained where right-of-way exclusion and avoidance areas have been identified (286,000 acres). This may also reduce the number of land use applications by 10%.	Impacts similar to Alternative 1. In addition, land uses would be constrained where right-of-way exclusion and avoidance areas have been identified (359,800 acres). Mitigation costs would increase slightly. This may also reduce the number of land use applications by 15%.
Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.

RESOURCE/ USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
LIVESTOCK GRAZING	Approximately 20% less forage would be allowed to be harvested from public land, mainly within the Valley Management Area, due to restrictions required to protect listed threatened or endangered species. Seasonal use restrictions would reduce management flexibility and eliminate 16% of the grazing season. 2,974 AUMs of forage would be lost to land disposal action and oil or gas development. Livestock grazing would be suspended on one entire allotment and portions of 6 allotments involving 3,432 acres of public land.	Approximately 60% less forage would be allowed to be harvested from public land, mainly within the Valley Management Area, due to restrictions required to protect listed threatened or endangered species. This alternative is the most restrictive on the allowable season of use for the Valley Management Area by eliminating 50% of the grazing season. 1,938 AUMs of forage within existing allotments would be lost to land disposal actions or oil and gas development. Livestock grazing would be suspended on 14 entire allotments and portions of 3 other allotments involving 24,219 acres of public land.
	There would be no significant economic impact to the Coast or South Sierra Management Area, and slight to moderate adverse economic impact to grazing operations in the Valley Management Area. More than 300 miles of fence might eventually be constructed to separate public from private land as a result of the new management prescriptions.	There would be a moderate to high adverse economic impact to most grazing operations within the Valley Management Area and to those on 19 allotments within the South Sierra Management Area. Possibly more than 600 miles of fence would be eventually constructed to separate public from private land as a result of the new management prescriptions within the Resource Area.
MINERALS	Mineral development within Visual Resource Management Class I and Class II areas will be severely restricted.	Same as Alternative 1.
	Reserved mineral estate on nearly 5,000 acres of land patented under the Recreation and Public Purposes and Small Tract Acts is closed to locatable minerals. Development of leasable and salable mineral resources will be highly restricted due to conflicting land uses. About 6,000 acres of reserved mineral estate in the Lake Isabella area, and in Sand Canyon have limited potential for development since the surface has been developed for residences.	Same as Alternative 1.

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
Approximately 20% less forage would be allowed to be harvested from public land, mainly within the Valley Management Area, due to restrictions required to protect listed threatened or endangered species. Seasonal use restrictions would reduce management flexibility and eliminate 16% of the grazing season. 4,774 AUMs of forage within existing allotments would be lost to land disposal actions or oil and gas development. Grazing would be suspended on one entire allotment and portions of six other allotments involving 3,432 acres of public land.	Available forage would be grazed more closely under this alternative than any other alternative, resulting in the most AUMs of forage harvested. Seasons of use would remain unchanged. 2,974 AUMs of forage within existing allotments would be lost to land disposal actions or oil and gas development.	Impacts would be the same as described for Alternative 3.
There would be no significant economic impact to the grazing operations in the Coast or South Sierra Management Areas, and a slight to moderate adverse economic impact to operations within the Valley Management Area. More than 300 miles of fence might eventually be constructed to separate public from private land as a result of the new management prescriptions.	There would be no significant economic impact to existing grazing operations within the Caliente Resource Area.	Same as Alternative 3.
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.

RESOURCE/ USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
MINERALS (Continued)	About 370,000 acres of land are considered habitat for Federally Listed species. Measures to protect these species will increase costs to operators for compensation, and/or mitigation. In addition measures to protect the habitat of State Listed species will add to the burden of producing mineral commodities.	Same as Alternative 1.
	Development of locatable minerals is restricted on approximately 1,000 acres by formal BLM withdrawals. Decisions made in the previous land use plans to withdraw an additional 6,250 acres are brought forward in the No Action alternative of this plan for implementation.	Approximately 34,000 acres would be proposed for withdrawal from location under this alternative. None of these lands are known to have a high potential for locatable minerals.
	During the study phase, proposed additions to the Wild and Scenic River System will be closed to all forms of mineral development. This will affect up to 15,000 acres, including the portion of the Kern River through Keyesville. Upon designation, scenic and recreational rivers will be again open for limited development. Wild rivers will remain closed.	Same as Alternative 1.
	Management prescriptions for ACECs will not close any areas to geothermal resource development, but will close 3,000 acres to solid leasable minerals and 8,000 to salable minerals. Overall, impacts to mineral development will be moderate.	Management prescriptions for Areas of Critical Environmental Concern will close 154,000 acres to geothermal resource development, 102,500 acres to solid leasable minerals and 27,000 to salable minerals. Overall impacts to mineral development from these closures and restrictions will be significant.
OIL AND GAS	Up to two new fields may be discovered on public lands in the next ten years.	No new fields are likely to be discovered on public lands in the next ten years.
	Enhanced oil recovery will increase 4 to 10% annually.	Same as Alternative 1.
	200 APDs will be filed annually, resulting in 200 acres of new disturbance each year.	150 APDs will be filed annually, resulting in 150 acres of new disturbance each year.

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Approximately 12,000 acres would be proposed for withdrawal from location under this alternative. None of these lands are known to have high potential for locatable minerals.	Approximately 9,000 acres would be proposed for withdrawal from location under this alternative. None of these lands are known to have high potential for locatable minerals.	Approximately 11,000 acres would be proposed for withdrawal from location under this alternative. None of these lands are known to have high potential for locatable minerals.
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Management prescriptions for Areas of Critical Environmental Concern will close 1,000 acres to geothermal resource development, 13,400 acres to solid leasable minerals and 13,000 to salable minerals. Overall impacts to mineral development from withdrawals and mitigative measures will be moderate.	The management prescriptions for Areas of Critical Environmental Concern will not close any area to geothermal resource development, but will close 3,000 acres to solid leasable minerals and 5,000 to salable minerals. Overall impacts to mineral development from withdrawals and mitigative measures will be moderate.	Areas of Critical Environmental Concern will close 3,300 acres to geothermal resource development, 87,000 acres to solid leasable minerals and 10,000 to salable minerals. Overall impacts to mineral development from withdrawals and mitigative measures will be moderate.
Same as Alternative 1.	Up to three new fields may be discovered on public lands in the next ten years.	Same as Alternative 1.
Same as Alternative 1.	Enhanced oil recovery will increase 5 to 12% annually.	Same as Alternative 1.
Same as Alternative 1.	250 APDs will be filed annually, resulting in 250 acres of new disturbance each year.	Same as Alternative 1.

RESOURCE/ USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
OIL AND GAS (Continued)	2 to 8 wildcats expected annually (24 acre disturbance).	Up to 2 wildcats expected annually (<10 acre disturbance).
	Annual seismic disturbance may total 40 to 200 acres.	Annual seismic disturbance may total 10 to 100 acres.
	Annual reclamation may total 280 to 570 acres.	Same as Alternative 1.
	Net annual surface disturbance: 1160 to 3500 acres.	Net annual surface disturbance: 1100 to 3350 acres.
RECREATION	Little change from existing recreation use, opportunities, and impacts.	Greatest restrictions on general dispersed camping.
	Continued adverse impacts and user conflicts from dispersed camping activities along the North Fork of the Kaweah River and in the Keyesville area.	Provide developed picnic areas along the North Fork of the Kaweah River, increasing day use opportunities in this area with a loss of dispersed camping along the river.
		Shooting closures would have limited impacts, as other nearby areas would remain open.
	Emphasis on providing dispersed undeveloped recreation opportunities and maintaining the existing facilities. Increasing amounts of dispersed use may reduce the quality of the recreationists' experience.	Develop picnic area at Keyesville and close to dispersed camping except by permit. Will result in loss of dispersed camping in that area.
		Increased public access to areas without existing access would increase opportunities for dispersed use in these areas, primarily from hunting and OHV use.
		The additional low water raft launch site would permit rafting during low water years, with reduced impacts from launching activities.

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
Same as Alternative 1.	Up to 10 wildcats expected annually (30 acre disturbance).	Same as Alternative 1.
Same as Alternative 1.	Annual seismic disturbance may total 50 to 250 acres.	Same as Alternative 1.
Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Same as Alternative 1.	Net annual surface disturbance: 1200 to 3600 acres.	Same as Alternative 1.
Emphasis on increased access, with additional facilities.	Emphasis on increased facilities, opportunities, and access.	Increased facilities, opportunities, and access.
Same as Alternative 2.	A developed campground would reduce impacts from dispersed camping along the N. Fork Kaweah River, while still providing camping opportunities.	Same as Alternative 2.
Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Same as Alternative 2.	Developed campground would provide additional camping near Lake Isabella with a loss of dispersed camping, except along the Kern River.	Provision of developed camping opportunities with a loss of dispersed camping at Keyesville except by permit.
Similar to Alternative 2, but greater access improves opportunities for dispersed activities.	Same as Alternative 2.	Same as Alternative 2.
	Same as Alternative 2.	Same as Alternative 2.

RESOURCE/ USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
VEGETATION	Grazing may result in minimal impacts to potential habitat of California jewelflower, San Joaquin woolly-threads, Hoover's woolly-star, and Bakersfield cactus. Grazing may seriously impact alkali mariposa lily, Jared's pepper-grass, and oak woodland. Grazing may indirectly impact or have minimal direct impacts to annual saltbush species, Kelso Creek monkeyflower, recurved larkspur, hollisteria, Owen's Peak lomatium, Piute Mountains jewelflower, Nine Mile Canyon phacelia, oval-leaved snapdragon, and forked fiddleneck. Moderate impacts from grazing may result to valley saltbush scrub, Joshua tree woodland, and giant Sequoia forest.	Grazing management should have no negative impacts on the listed species and may enhance the recovery of the species. Impacts from grazing would be the same as Alternative 1 for recurved larkspur, forked fiddleneck, hollisteria, Jared's pepper-grass, mouse buckwheat, and Nine Mile Canyon phacelia. Grazing should have only minimal impacts on annual saltbush species, Kelso Creek monkeyflower, oval-leaved snapdragon, Owen's Peak lomatium, valley saltbush scrub, oak woodland, valley sink scrub, Joshua tree woodland, and giant Sequoia forest.
	Oil and gas exploration, leasing, and development may impact the five federally listed plants, annual saltbush species, oval-leaved snapdragon, forked fiddleneck, valley saltbush scrub, and valley sink scrub.	The impacts from oil and gas exploration, leasing, and development would be the same as those described for Alternative 1.
	Development following land disposal would have negative impacts on the listed species potential habitat, alkali mariposa lily, Kelso Creek monkeyflower, valley saltbush scrub, oak woodland, valley sink scrub, and Joshua tree woodland.	Development following land disposal may negatively impact potential habitat for listed and candidate species. Negative impacts may also occur to the sensitive plant communities.
	Mining activities may negatively impact any of the species or communities analyzed but especially mouse buckwheat and Joshua tree woodland.	Mining activities may negatively affect mouse buckwheat and Joshua tree woodland. Other species may also be adversely affected.
	Overflow OHV activity may seriously impact alkali mariposa lily and Kelso Creek monkeyflower.	Overflow OHV activity may seriously impact alkali mariposa lily and Kelso Creek monkeyflower.
	Acquisition of private lands may benefit a number of these species and communities.	Acquisition of private lands and designation of new ACECs should benefit many of these species and communities.

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
Impacts from grazing would be the same as those described for Alternative 1 for all species analyzed although the proposed utilization levels under this alternative may result in fewer impacts to oak woodland.	Grazing may result in the extirpation of populations of California jewelflower and Kern mallow. Grazing may severely impact San Joaquin woolly-threads, Hoover's woolly-star, and potential habitat for Bakersfield cactus. Impacts from grazing would be the same as Alternative 1 for all the candidate species, Joshua tree woodland, and giant Sequoia forest. Grazing may severely damage valley saltbush scrub and oak woodland, resulting in the decline of both communities.	The impacts from grazing would be the same as Alternative 1 for Kern mallow, Hoover's woolly-star, the candidate species, valley saltbush scrub, valley sink scrub, Joshua tree woodland, and giant Sequoia forest. Impacts from grazing would be similar to Alternative 1 for California jewelflower, San Joaquin woolly-threads, Bakersfield cactus, and oak woodland; although lighter utilization rate on perennial species should result in only minimal impacts to the listed species and moderate impacts to oak woodland.
The impacts from oil and gas exploration, leasing, and development would be the same as those described for Alternative 1.	Oil and gas leasing and development may result in more severe impacts to potential habitat for listed species and occupied habitat of annual saltbush species, oval-leaved snapdragon, forked fiddleneck, valley saltbush scrub, and valley sink scrub.	The impacts from oil and gas exploration, leasing, and development would be the same as those described for Alternative 1.
Development following disposal may negatively affect listed and candidate species potential habitat and occupied habitat of alkali mariposa lily, Kelso Creek Monkeyflower, valley sink scrub, oak woodland, valley sink scrub, and Joshua tree woodland.	Development following disposal may negatively affect listed and candidate species potential habitat and occupied habitat for many of the candidates and sensitive plant communities.	The impacts from development following disposal would be similar to Alternative 3.
Mining activities may negatively affect mouse buckwheat and Joshua tree woodland. Other species may also be adversely affected.	Mining activities may negatively affect mouse buckwheat and Joshua tree woodland. Other species may also be adversely affected.	Impacts from mining activities would be the same as Alternative 3.
Overflow OHV activity may seriously impact alkali mariposa lily and Kelso Creek monkeyflower.	OHV development will seriously impact alkali mariposa lily and Kelso Creek monkeyflower resulting in the extirpation of any populations occurring in Cyrus Flat.	Overflow OHV activity may seriously impact alkali mariposa lily and Kelso Creek monkeyflower.
Acquisition of private lands and designation of some new ACECs should benefit many of these species and communities.	Acquisition of private lands and designation of some new ACECs may benefit some of these species and communities.	Acquisition of private lands and designation of some new ACECs should benefit many of these species and communities.

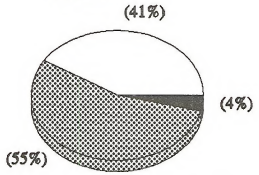
RESOURCE/ USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
WATER RESOURCES	A significant nonpoint source pollution threat, in the form of excess sediment delivery, exists on all watersheds of the South Sierra and Coast Management Areas. The potential is correlated to watershed condition and continuing drought. Wildfire followed by a hydrological event, of proper magnitude, elevates potential impacts. An additional, potentially significant impact, is associated with hazardous material mishaps. However, the probability is low for a random event of this order in the few live waters located on public lands.	This alternative is the most beneficial management option for water resources development and protection. The same random event exceptions mentioned under Alternative 1, i.e. wild fire and hazardous materials mishaps, pose a potential threat. However, nonpoint pollution is the primary threat and the potential impact is moderate to significant.
WILDLIFE	Federally Listed Species	Federally Listed Species
	Grazing is expected to be compatible with all listed species. It is unknown how discontinuation of grazing will affect Tipton kangaroo rats. Continued development and operation of existing oil and gas fields and issuing leases for oil and gas development may adversely affect most listed species.	Same as Alternative 1.
	Mineral extraction and spraying of malathion may adversely affect blunt-nosed leopard lizards. Exchanges of lands may either benefit or adversely affect the blunt-nosed leopard lizard, giant kangaroo rat and San Joaquin kit fox. Disposal of public land may adversely affect the California condor, Tipton kangaroo rat and Kern primrose sphinx moth. Continued designation of five ACECs and management of the Carrizo Plain Natural Area will benefit most species.	Mineral extraction and spraying of malathion may adversely affect blunt-nosed leopard lizards. Disposal of public land may adversely affect the California condor. Continued designation of two ACECs and designation of six new ACECs is expected to benefit listed species.
	Special Status Species	Special Status Species
	Grazing is expected to be either compatible with or adversely affect special status species. It is unknown how discontinuation of grazing will affect short-nosed kangaroo rats. Continued leasing, development, and operation in old or new oil and gas fields for oil and gas development may adversely affect the LeConte's thrasher.	Grazing is expected to be compatible with special status species in some allotments and adversely affect special status species in other allotments. It is unknown how discontinuation of grazing will affect short-nosed kangaroo rats. Continued development and operation of existing oil and gas fields and issuing leases for oil and gas development may adversely affect the LeConte's thrasher.

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
The Administrative Adjustment Alternative differs only slightly from Alternative Two for water resource development and protection. The same random event exceptions mentioned pose a potential threat. However, nonpoint pollution is the primary threat and the potential impact is significant.	The Development Emphasis Alternative would have the most impact on water resources. The same random event exceptions pose a potential threat. However, nonpoint pollution is the primary threat and the potential impact is significant.	The Preferred Alternative differs only slightly from Alternative Two for water resource development and protection. The same random event exceptions pose a potential threat. However, nonpoint pollution is the primary threat and the potential impact is significant.
Federally Listed Species Same as Alternative 1.	Federally Listed Species In most allotments, grazing is expected to adversely affect listed species. Continued development and operation of existing oil and gas fields and issuing leases for oil and gas development may adversely affect most listed species.	Federally Listed Species Same as Alternative 1.
Mineral extraction and spraying of malathion may adversely affect blunt-nosed leopard lizards. Exchanges of lands may either benefit or adversely affect the blunt-nosed leopard lizard, giant kangaroo rat and San Joaquin kit fox. Disposal of public land may adversely affect most listed species. Continued designation of two ACECs and designation of three new ACECs will benefit most species.	Mineral extraction and spraying of malathion may adversely affect blunt-nosed leopard lizards. Exchanges of lands may either benefit or adversely affect the giant kangaroo rat and San Joaquin kit fox. Disposal of public land may adversely affect the California condor, Tipton kangaroo rat and Kern primrose sphinx moth. Continued designation of two ACECs and designation of three new ACECs will benefit most species.	Mineral extraction and spraying of malathion may adversely affect blunt-nosed leopard lizards. Exchanges of lands may either benefit or adversely affect the blunt-nosed leopard lizard, giant kangaroo rat and San Joaquin kit fox. Disposal of public land may adversely affect California condor, Tipton kangaroo rat & Kern primrose sphinx moth. Retention of two ACECs and designation of four new ACECs will benefit most species.
Special Status Species Grazing is expected to be compatible with special status species in some allotments and adversely affect special status species in other allotments. It is unknown how discontinuation of grazing will affect short-nosed kangaroo rats. Continued development and operation of existing oil and gas fields and issuing leases for oil and gas development may adversely affect the LeConte's thrasher.	Special Status Species In most allotments, grazing is expected to adversely affect special status species. Continued development and operation of existing oil and gas fields and issuing leases for oil and gas development may adversely affect the LeConte's thrasher.	Special Status Species Similar to Alternative 1.

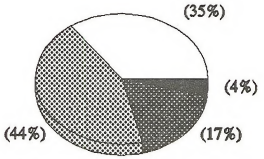
RESOURCE/ USE	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 RESOURCE PROTECTION
WILDLIFE (Continued)	Mineral extraction and disposal of public lands may adversely affect Mojave ground squirrels. Maintenance of existing roads may adversely affect San Joaquin antelope squirrels. Continued designation of four ACECs and management of the CPNA will benefit most species. <u>High Economic or Recreation Value Species</u> Grazing is expected to be either compatible with or adversely affect game species. Continued designation of one ACEC and management of three NCLWMAs is expected to benefit the species. <u>Aquatic, Wetland or Riparian Habitat</u> Livestock grazing may adversely affect riparian resources on some allotments. Riparian habitat may be present on some parcels identified for disposal. Continued designation of three ACECs and management of the Carrizo Plain Natural Area is expected to benefit riparian, alkali pond and intertidal habitat. <u>Significant Populations</u> Suitable habitat conditions for raptors will continue to be provided on public lands. Continued designation of five ACECs and management of the CPNA is expected to benefit raptors. Livestock grazing and land disposals may adversely affect riparian resources used by some neotropical migrants. Retention of two ACECs is expected to benefit neotropical species.	Mineral extraction may adversely affect Mojave ground squirrels. Maintenance of existing roads may adversely affect San Joaquin antelope squirrels. Continued designation of one ACEC and designation of four new ACECs is expected to benefit special status species. <u>High Economic or Recreation Value Species</u> Grazing is expected to be compatible with game species in some allotments and adversely affect game species in other allotments. Continued designation of one ACEC and three NCLWMAs and designation of eight new ACECs is expected to benefit the species. <u>Aquatic, Wetland or Riparian Habitat</u> Livestock grazing is expected to be compatible with riparian resources on most allotments. Continued designation of two ACECs and designation of ten new ACECs is expected to benefit riparian, wetland and intertidal habitat. <u>Significant Populations</u> Suitable habitat conditions for raptors will continue to be provided on public lands. Continued designation of two ACECs and designation of nine new ACECs is expected to benefit raptor species. Livestock grazing may have a slight adverse effect on riparian resources used by some neotropical migrants. Retention of two ACECs and designation of six new ACECs is expected to benefit neotropical species.

ALTERNATIVE 3 ADMINISTRATIVE ADJUSTMENT	ALTERNATIVE 4 DEVELOPMENT	ALTERNATIVE 5 PREFERRED
Mineral extraction and disposal of public lands may adversely affect Mojave ground squirrels. Maintenance of existing roads may adversely affect San Joaquin antelope squirrels.	Mineral extraction and disposal of public lands may adversely affect Mojave ground squirrels. Maintenance of existing roads may adversely affect San Joaquin antelope squirrels.	Similar to Alternative 1.
Continued designation of one ACEC and designation of three new ACECs will benefit most species.	Continued designation of one ACEC and designation of three new ACECs will benefit most species.	Continued designation of one ACEC and five new ACECs will benefit most species.
High Economic or Recreation Value Species	High Economic or Recreation Value Species	High Economic or Recreation Value Species
Grazing is expected to be compatible with game species in some allotments and adversely affect game species in other allotments. Retention of one ACEC and three NCLWMAs and designation of four new ACECs is expected to benefit the species.	Same as Alternative 3.	Grazing is expected to be compatible with game species in some allotments and adversely affect game species in other allotments. Retention of one ACEC and three NCLWMAs and designation of four new ACECs is expected to benefit the species.
Aquatic, Wetland or Riparian Habitat	Aquatic, Wetland or Riparian Habitat	Aquatic, Wetland or Riparian Habitat
Similar to Alternative 1.	Similar to Alternative 1.	Similar to Alternative 1.
Continued designation of one ACEC and designation of five new ACECs is expected to benefit riparian, alkali pond and intertidal habitat.	Continued designation of two ACECs and designation of four new ACECs is expected to benefit riparian, alkali pond and intertidal habitat.	Continued designation of two ACECs and designation of five new ACECs is expected to benefit riparian, alkali pond and intertidal habitat.
Significant Populations	Significant Populations	Significant Populations
Suitable conditions for raptors will continue to be provided on public lands. Continued designation of two ACECs and designation of five new ACECs is expected to benefit raptor species. Grazing and land disposals may adversely affect riparian resources used by some neotropical migrants. Retention of two ACECs and designation of three new ACECs is expected to benefit neotropical species.	Suitable habitat conditions for raptors will continue to be provided on public lands. Retention of two ACECs and designation of four new ACECs is expected to benefit raptor species. Livestock grazing and land disposals may adversely affect riparian resources used by some neotropical migrants. Retention of two ACECs and designation of three new ACECs is expected to benefit neotropical species.	Suitable habitat conditions for raptors will continue to be provided on public lands. Retention of two ACECs and designation of seven new ACECs is expected to benefit raptor species. Grazing and land disposals may adversely affect riparian resources used by some neotropical migrants. Retention of two ACECs and designation of four new ACECs is expected to benefit neotropical species.

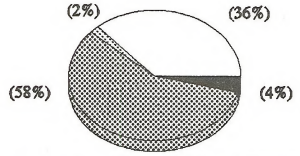
Oil & Gas Management Class
By Alternative
Figure S-1



Alternative 1 - No Action

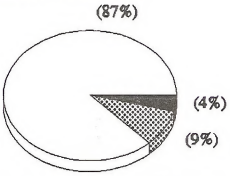


Alternative 2 - Resource Protection

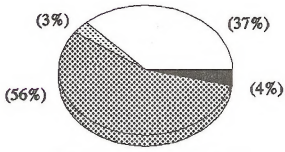


Alternative 3 - Administrative Adjustment

Oil & Gas Management Class
By Alternative
Figure S-1 (Continued)



Alternative 4 - Development Emphasis



Alternative 5 - Preferred

Legend

- Open
- Minor Constraints
- Major Constraints
- Closed:Discretionary
- Closed:Non-Disc.

Areas of Critical Environmental Concern

By Alternative

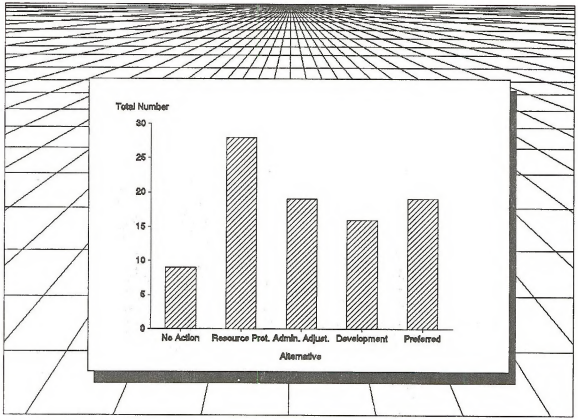


Figure S-2

Areas of Critical Environmental Concern (ACECs) call attention to locations with sensitive or unique resources that need extra management attention. Of particular importance is the level of protection and management prescribed for these sites. ACECs and their management under each alternative are described in more detail in Chapter 3.

Land Tenure Adjustment

By Alternative

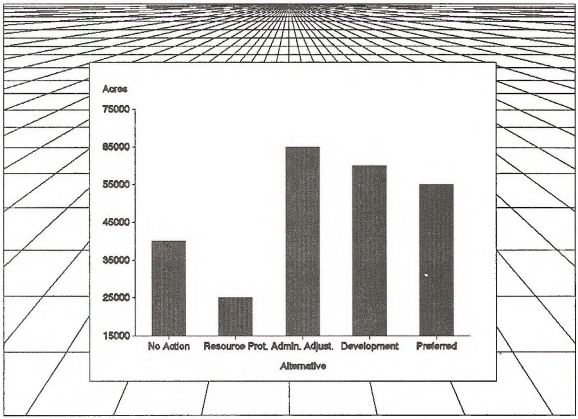


Figure S-3

This figure shows the amount of public land that is available for disposal for each alternative. This data is a reflection of the objectives for each alternative, and conforms to the standards described in this plan. Additional screening of parcels may result in some of these lands being unavailable for disposal. Most parcels would be exchanged for lands with greater resource values that would "block up" the ownership pattern.

Livestock Grazing

By Alternative

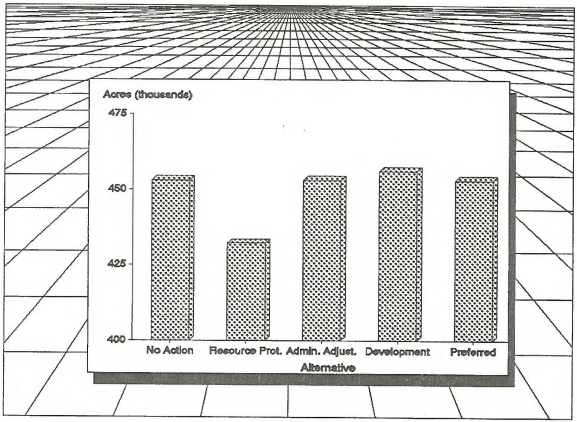
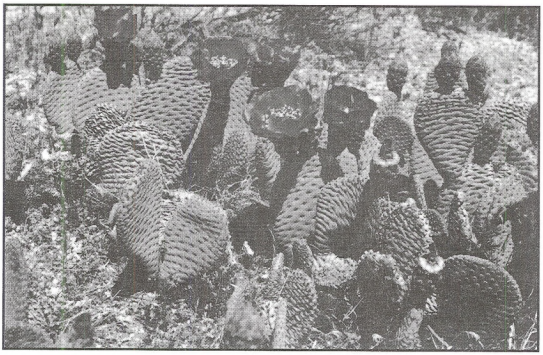


Figure S-4

The above figure shows the number of acres that would be included within cattle and sheep grazing allotments under each alternative. The management within these allotments would also vary significantly by alternative. The allotments and their management are described in the appendices.

Chapter 1
Introduction



Bakersfield Cactus - a Federally Endangered Species

Chapter 1 - Introduction

The Bureau of Land Management's (BLM) Caliente Resource Area encompasses 11.5 million acres of land in central California. The Caliente Resource Management Plan (RMP) will guide management of the 570,000 acres of public land and an additional 452,000 acres of Federal reserved mineral estate (split estate) in the region for the next 15 years.

The decisions made in an RMP are planning decisions, as opposed to more detailed activity level decisions. These decisions provide guidance for resolving major resource use, allocation, and protection issues. They will be implemented either directly, or through site specific activity plans supported by an Environmental Assessment or Environmental Impact Statement (EIS); which will reference the RMP. The RMP not only allocates land uses, the "where things may happen", it also provides the direction needed to manage the resources. It identifies levels and types of uses that may occur, conditions to be maintained, limitations on uses, and similar guidelines. For example the RMP will:

-Identify where oil and gas development will be allowed to occur, and under what restrictions;

-Identify what public lands are available for disposal, what lands the Bureau is interested in acquiring, and where the Bureau will seek to acquire public access;

-Establish off highway vehicle (OHV) designations for public lands and roads;

-Identify lands open to livestock grazing, and the general constraints under which grazing will be managed;

-Establish Areas of Critical Environmental Concern (ACECs).

In contrast, activity level decisions are more specific than planning decisions, and usually involve the implementation or "how to" of broader planning decisions. For example, planning (RMP) decisions determine which areas will be open to grazing and what the objectives will be, while site specific (activity level) management plans to be developed later will determine how those objectives will be reached.

This document is a combination draft resource management plan and draft environmental impact statement (EIS). The resource management plan encompasses Chapter 3 and the appendices. Chapter 3 is actually a collection of five separate plans - each presented as a separate alternative. Four of the alternatives were developed to emphasize specific concerns; the preferred alternative was derived from the other four. One of these plans, or a variation thereof, will serve as the final resource management plan. Included in Chapters 2 and 4 are components of the EIS, which analyzes the effects of all five alternatives.

Following the receipt of public comments on this document, appropriate revisions will be made and the Proposed RMP/FEIS will be made available for a 30 day protest period. The BLM's California State Director will then sign the approved RMP Record of Decision. The plan will then be made available for the public, and implementation will begin.

During implementation of the approved plan, environmental assessments (EAs) will be prepared whenever required by the National Environmental Policy Act of 1969 (NEPA). Eas document NEPA requirements for site-specific actions, and can vary from a simple statement of conformance with the RMP, to complex documents that analyze several alternatives. Implementation of the RMP will be monitored, and the plan will be evaluated periodically.

Amendments to the approved plan (done with public review) or minor revisions may be necessary to accommodate changes in resource needs, policies, and regulations.

Purpose and Need

The purpose of this planning effort is to update and integrate the BLM's land use planning for the Caliente Resource Area into one comprehensive land use plan. The final RMP will replace the Coast/Valley Resource Management Plan and the South Sierra Foothills Management Framework Plan.

Since these last land use plans were prepared, Bureau policy has evolved to comply with recent court decisions, as well as to reflect new public concerns. In addition, the BLM developed new standards for the analysis of oil and gas leasing, which required decisions not made in the previous plans. The Caliente RMP addresses these new requirements, as well as issues identified in a number of public meetings.

Sections 102 and 202 of the Federal Land Policy and Management Act (FLPMA) of 1976 (as amended) require the Secretary of the Interior to develop land use plans for all public land under the administration of the BLM. This draft RMP conforms to FLPMA and the Code of Federal Regulations, including the planning regulations found in Title 43, Part 1600 of the Code of Federal Regulations (43 CFR 1600). One of these alternatives or a modification thereof will be selected as the final RMP.

The environmental impact statement has been prepared for the proposed RMP and alternatives in response to the regulations of the Council on Environmental Quality found in 40 CFR 1500, which, in conformance with NEPA, require Federal agencies to prepare statements documenting environmental consequences of Federal actions significantly affecting the human environment. Resource management plans qualify as significant actions and thus require the preparation of an environmental impact statement.

Planning Area Description

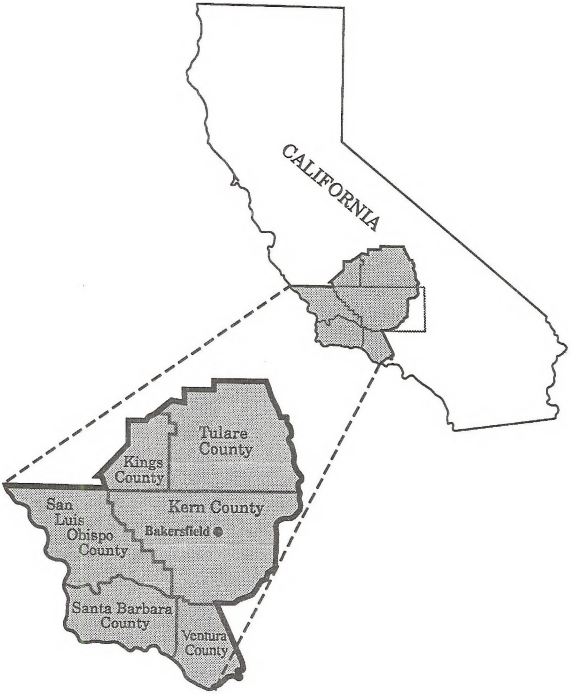
The planning area covers the entire Caliente Resource Area, and includes portions of Kern, Kings, San Luis Obispo, Santa Barbara, Tulare, and Ventura Counties. Major cities include Bakersfield, Santa Barbara, and San Luis Obispo. Stretching from islands in the Pacific Ocean across the southern Central Valley and through the Sierra Nevada Mountains, public lands are scattered across the planning area in numerous small parcels. The larger blocks of public land lie in the Carrizo Plain of eastern San Luis Obispo County, and in the Lake Isabella - Chimney Peak - Walker Pass region in Kern County.

With much of the resource area lying within 100 miles of the Los Angeles metropolitan area, it serves both as a corridor for utilities and services, and as a weekend playground. Local population growth and its resulting pressures on open space have been phenomenal, with Bakersfield alone growing by 65% between 1980 and 1990. However the significance of the Caliente Resource Area is its resources.

Resource and agricultural development in the area are nearly beyond description. Kern County is the largest oil producing county in the 48 contiguous states - the density of oilfield development is unmatched anywhere in the country. Agricultural production on private lands is the third highest in California. Of significance to this plan, are the effects of these activities on public land management. The resource area also includes 32 plant and animal species that are formally listed as Threatened or Endangered. Although many of these species are not known from public land, potential habitat for one species or another covers most of the resource area, so all land uses must be carefully scrutinized.

To facilitate the planning process, the planning area has been divided into three separate management areas, as shown in Map 2. Although these areas are relatively large and contain widely scattered parcels, they have a degree of homogeneity with regard to resource characteristics and planning issues. The

Caliente Resource Area
Location Map
Map 1



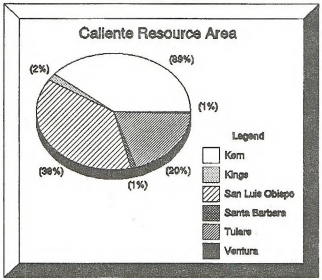
MAP 1 RESOURCE AREA LOCATION

Figure 1

Public Lands by County

BLM Surface Acres

County	Acres
Kern	222,000
Kings	11,000
San Luis Obispo	215,000
Santa Barbara	7,000
Tulare	112,000
Ventura	3,000
TOTAL	570,000



divisions serve as a general geographic reference for identifying where the lands are located, and also provide the presentation of plan alternatives so they can be evaluated in the context of local government concerns.

Management Areas

Coast Management Area

The Coast Management Area includes 19,000 acres of public land in San Luis Obispo, Santa Barbara, and Ventura Counties. Most of the public land, including the largest parcels, are in mountainous terrain between Nacimiento and Twitchell reservoirs. Lands within the management area contain several sensitive plant species and habitats, and also have potential for recreational use. The Sespe area includes some concentrated oil and gas development, although there are few public lands in the area. The California Condor is the only federally listed threatened or endangered species known from public lands in the area. In addition to the acreage mentioned above, there are also 52,000 acres of Federal reserved mineral estate.

Valley Management Area

The Valley Management Area includes the southern San Joaquin Valley and the Carrizo Plain. There are approximately 313,000 acres of public land, and an additional 204,000 acres of Federal reserved mineral estate. Private lands in the management area are predominantly agricultural. Most of the public land is found in the area of the Temblor Mtns - Carrizo Plain - Caliente Range. This management area is characterized by the its extensive oil development. Large numbers of public land parcels also provide habitat for five plant species that are Federally listed as threatened or endangered, and up to six listed animals.

Bureau of Land Management
MANAGEMENT AREA BOUNDARIES
Caliente Resource Area
Map 2

MAP 2 MANAGEMENT AREAS

South Sierra Management Area

The South Sierra Management Area includes 238,000 acres of public land. In addition, there are approximately 195,000 acres of Federal reserved mineral estate. The larger blocks of public land lie near Lake Isabella, Walker Pass, Chimney Peak, and Three Rivers. The management area is devoid of oil and gas development, and provides significantly less threatened and endangered species habitat than does the Valley Management Area. The lands have value for watershed and wildlife habitat, and also have potential to provide for recreational use.

Goals

The goals developed for the Caliente Resource Management Plan during the initial stages of the planning process are as follows:

1. Provide managerial direction which will adequately direct and guide land use allocations and management actions for the variety of resource values and uses of the public land in the Resource Area.

2. Provide a planning framework for evaluating the compatibility of unanticipated public needs and future demands for public lands and to address changing situations resulting from new laws, new Departmental regulations, or Bureau policy.

3. Provide managerial direction based on a sound foundation of data, which has been environmentally analyzed to fully meet the requirements of NEPA.

4. Reflect the desires and concerns of the public by providing the opportunity for their participation in the planning process and plan implementation.

5. Manage public lands and resources under the concept of multiple use to attain the optimum combination of uses.

6. Manage public lands in a manner which recognizes the nation's need for domestic sources of energy, minerals, and livestock products from the public lands, and the importance of these industries to local and regional economies.

7. Foster an environment in which oil and gas exploration and development can take place in harmony with the management goals of other resource programs, such as the preservation of threatened and endangered (T&E) species.

8. Facilitate mineral exploration and development while minimizing residual impacts to sensitive resources.

9. Adjust land tenure to improve federal land management effectiveness, increase resource values, and provide lands for public and private uses.

10. Accommodate viable requests for land use authorizations where residual impacts to sensitive resources are minimal.

11. Provide special management emphasis in areas with unique features or special management needs.

12. Provide emphasis on the protection and enhancement of threatened and endangered species habitat, as well as the development and management of the Carrizo Plain Natural Area.

13. Manage public lands to promote recovery of T&E species and to prevent the listing of additional species, such as federal candidates, BLM sensitive species, and locally rare species.

14. Acquire, protect, and restore significant natural communities such as alkali sink scrub, valley saltbush scrub, and wetlands.

15. Minimize or compensate for impacts from development programs to other sensitive resources, including: cultural and

paleontological resources; wildlife habitat; and air and water quality.

16. Protect watershed, structures, and sensitive resources from wildfire and unauthorized uses, through fire prevention, suppression and law enforcement.

17. Manage for diverse recreation opportunities for the increasing number of visitors to public lands.

18. Provide public education and guidance on BLM's mission, the public's responsibilities, environmental awareness, and proper use of public lands.

Planning Process

The BLM planning system is subdivided into three tiers. The first tier is one of National policy and State Director guidance that identifies goals, objectives, priorities and other factors for use in planning. This document is part of the second tier - resource management planning. Activity planning is the third tier. Activity plans are prepared when more detailed and site specific planning is needed than that provided by resource management planning.

The resource management planning process is divided into the following nine steps:

1. Identification of Issues

   This step identifies resource management conflicts and opportunities that can be resolved through the planning process. Public scoping is used to help identify planning issues.

2. Development of Planning Criteria

   This step identifies the information needed to resolve issues and provides guidance for formulating and evaluating alternatives, and selecting a preferred alternative. The criteria are circulated for public review.

3. Inventory Data and Information Collection

   This step involves the collection of resource, social, economic, or institutional data needed for completion of the process.

4. Analysis of the Management Situation

   This step calls for an assessment of the current situation. It includes a description of current BLM management guidance, a discussion of existing problems and opportunities for solving them, and a consolidation of existing data that is needed to analyze and resolve the identified issues.

5. Formulation of Alternatives

   During this step, several complete, reasonable resource management alternatives are prepared, including one describing current management, (called the No Action alternative), and several that strive to identify new solutions to resolve the issues.

6. Estimation of Effects of Alternatives

   The physical, biological, economic, and social effects of implementing each alternative are estimated in order to allow for a comparative evaluation of impacts.

7. Selection of the Preferred Alternative

   This step compares the impacts of each alternative and selects the preferred alternative. The interdisciplinary process used in Steps 5 through 7 is documented in this draft RMP/EIS, and circulated for public review.

8. Selection of the Resource Management Plan

   This step analyzes public comments, modifies the alternatives as appropriate,

and serves as a basis for the management plan. The proposed RMP and final EIS is distributed to the public in the final RMP/EIS document. A 30-day protest period is allowed before the RMP is adopted. An approved RMP and Record of Decision is published after consideration of any protests.

9. Monitoring and Evaluation

This step involves monitoring and evaluating the resource conditions as the plan is implemented. If monitoring shows that resource issues are not being satisfactorily resolved or that the desired results outlined by the RMP are not being met, the plan may be amended.

Issues Selected for Analysis

Two planning issues were identified for examination in the Caliente RMP. These issues were identified during the initial public scoping phase of the planning effort. A third issue was later identified during the Analysis of the Management Situation. A description of public involvement in the planning process, including public scoping, consultation, and coordination, is presented in Chapter 5.

Oil and Gas Leasing and Development

The exploration and production of nationally significant oil and gas reserves in the planning area are generating increasing amounts of surface disturbance. This disturbance can lead to degradation of natural habitat, can deteriorate watershed values, and can impact other natural and cultural resources. In order to protect these resources, development is heavily regulated and controlled. Conversely, exploration and development of these oil and gas resources can be unnecessarily restricted and encumbered by protective measures designed to minimize impacts to threatened and endangered species habitat and other resource programs.

The impacts generated from oil and gas exploration and development are quite diverse. Some of these impacts deal with threatened and endangered species, visual resource management, and compatibility with other land uses. Other issues which are of management concern deal with the following items: impacts to native species habitat, handling and disposal of oil field hazardous waste, air quality impacts from oil production, watershed impacts, and cumulative surface area disturbed by exploration and development actions. These impacts have provided a basis for planning criteria development and evaluation.

Administrative Adjustment and Use Authorizations

The Caliente Resource Area contains numerous isolated parcels of public land, scattered throughout the six counties in the Resource Area, making them hard to manage. They often lack legal or physical access, which precludes public use of many of them. Larger blocks of public land may lack public access or include private inholdings, which sometimes makes accomplishment of management goals for public land difficult to achieve. Disposal, transfer, or exchange of these small isolated parcels may provide for more effective management, increased access, or acquisition of valuable resources. It could also result in the loss of public resources such as minerals, wildlife habitat, cultural, or recreational values, resulting in public concern.

There are also a number of public land classifications and withdrawals in effect which may be obsolete and are in need of review for revocation. For some of these, revocation is already in progress, or relinquishment by other Federal agencies is anticipated.

Livestock Grazing

Grazing on public lands was not identified as an issue by the public during the scoping phase. Upon initial review of our data, it became apparent that grazing could be significantly affected.

Livestock grazing has the potential to affect vegetation production and composition. This in turn could permanently eliminate the

threatened and endangered plant species that are known to occur in grazing allotments, either through direct consumption or habitat alteration. Habitat alteration and forage competition also pose a threat to threatened and endangered wildlife species.

Conversely, significant alterations of allotment boundaries, seasons of use, or mulch requirements could put some stockmen out of business by denying the use of the range when it is needed, or by requiring expensive range improvements.

Planning Criteria

Planning criteria are the standards or rules used to form judgments about data collection, analysis and decision making during planning. Planning criteria for the Caliente RMP include all applicable Federal laws, regulations, executive orders and policies which BLM is required to follow some additional planning criteria were specifically developed for the Caliente planning effort and were reviewed by the public earlier in the planning process. Criteria relating to livestock grazing were not reviewed by the public due to the late identification of that issue, but are available for review at this time. These planning criteria are listed below.

A) Oil and Gas Leasing and Development

1. All alternatives will assume a continuation of the oil and gas leasing program within the Caliente Resource Area. Potential lease areas will be classified into one of four categories: open, open with minor stipulations, open with major stipulations (including no surface occupancy), or closed to leasing. The kind of stipulations may vary from site to site depending on the resource values that are present.

2. An alternative will be developed giving a priority emphasis to oil and gas development within the Valley Management Area.

3. The classification of areas as high, medium or low potential for oil and gas development will influence decisions.

4. The availability of public land for oil and gas leasing is an evaluation factor.

5. Impacts of lease stipulations on oil and gas production will be considered when stipulations are developed.

6. The significance of oil and gas activities on social and economic conditions will be an evaluation factor.

7. The influence of oil and gas development on visual resource management values will be considered.

8. The compatibility of oil and gas leasing and development with the mission of other agencies on lands they administer will be a consideration.

9. The effects of closing areas to leasing will affect final recommendations.

10. The cumulative impacts of oil and gas leasing and development will be assessed.

11. The compatibility with adjoining land uses will be considered.

12. The compatibility of multiple land uses will be assessed.

13. The presence of threatened, endangered and sensitive species habitat will be considered.

B) Administrative Adjustment

1. The impacts of land ownership adjustments on management efficiency/effectiveness will be considered.

2. The impacts of land ownership adjustments on public use of public resources will be an evaluation factor.

3. The impacts of land ownership adjustments on social and economic conditions will be considered.

4. Exchange will be the emphasized method of disposal.

5. Lands with high resource values, such as threatened and endangered species habitat, unique geologic, cultural or wildlife features etc., will be retained in Federal ownership unless they can be exchanged for lands with equal or greater values.

6. The impacts to surrounding land owners shall be considered.

7. The identified lands must meet established criteria for disposal under one or more statutory authorities.

8. Land exchanges will be conducted according to Bureau guidance.

9. Each alternative will be developed addressing land acquisition for the Carrizo Plain Natural Area.

10. Public access into Point Sal, Case Mountain, Caliente Mountain, Milk Ranch Peak, portions of Kaweah River and other areas will be considered in one or more alternatives.

11. An alternative will have a land ownership adjustment component designed to foster more efficient management and public use of public resources.

C) Livestock Grazing

1. All alternatives will assume a continuation of livestock grazing within the Caliente Resource Area.

2. An alternative will be developed giving a priority emphasis to livestock grazing, subject to the constraints of the Endangered Species Act.

3. Impacts of modified seasons of use and mulch requirements will be considered.

4. The significance of ranching on social and economic conditions will be an evaluation factor.

5. The cumulative impacts of livestock grazing will be assessed.

6. The compatibility with adjoining land uses will be considered.

7. The compatibility of multiple land uses will be assessed.

8. The presence of threatened, endangered and sensitive species habitat will be considered.

Management Concerns

Additional planning criteria related to management concerns are as follows:

1. All alternatives will protect and enhance threatened and endangered T&E species habitat to fulfill the intent of the Endangered Species Act.

2. All alternatives will assume a continuation of existing interagency cooperative agreements.

3. All alternatives will assume the continuing validity and provide for the proper protection and management of the following special areas: Point Sal National Natural Landmark; Piute Cypress and San Andreas Fault Scarp Research Natural Area; and Blue Ridge, Point Sal, Soda Lake, Elkhorn Plain, Carrizo Plain and Goose Lake Areas of Critical Environmental Concern. Any future special area designations or expansions will also receive this consideration.

4. An alternative will be developed giving a priority emphasis to protection and enhancement of T&E species' habitat beyond the minimum requirements of the Endangered Species Act, protection of native species habitat, and methods of

improving the area's air quality.

5. An alternative will be developed, giving a priority emphasis to oil and gas development within the Valley Management Area.

6. Alternatives will consider the importance of protecting and improving riparian and wetland habitats.

Major Resources And Topics Addressed In The Plan

Any action, or even a lack of action, may have an effect on resources. Although a large number of resources may be present in any given area, often many of them will remain minimally affected by a proposal. Following is a list of resources and topics addressed in this plan. The impacts to these topics had the potential to be significant, so a detailed analysis was considered appropriate.

Air Quality
Land Tenure Adjustment
Land Use Authorizations
Livestock Grazing
Minerals
Oil and Gas Development
Recreation
Vegetation
Water Resources
Wildlife

Chapter 4, Environmental Consequences, addresses the positive and negative impacts to these resources resulting from the five alternatives described in this plan.

Resources And Topics Considered But Dropped From Further Analysis

A variety of natural and social resource values were evaluated for this plan. However it was determined that there was little potential for significant impacts to many of them. The following topics are not fully analyzed within this RMP. Rationale for not addressing these is described below.

Also included in this section are a limited number of determinations. BLM planning guidance requires that certain decisions be made during the RMP process unless: they are addressed in other valid planning documents, the resource is not present , or if a determination would be premature. As applicable, these reasons are stated within this section, or in Management Guidance Common to All Alternatives in Chapter 3.

Agriculture

The great majority of public lands in the resource area are not located in agricultural zones, and do not have any agricultural potential due to steep slopes, poor soils, and lack of water. There are only about 1,000 acres of public land that have any potential for crop production, and these are all located in the San Joaquin Valley. The presence of sensitive plant and animal species on these lands further precludes their potential for crop production. Therefore, little if any future agricultural development on public lands is anticipated. In addition, the land use alternatives in this plan would not affect local agricultural markets, crop production practices, or water supplies, so further review is unnecessary.

Apiary Management

Permits for apiary sites on public land in the resource area are authorized as time and funding allow. Standard terms and conditions are applied and rental collected based on current regulations. Existing authorizations affect approximately eight acres of public land in the resource area, less than .0013% of the total public land surface in the resource area. Prior to any new site authorizations, a site-specific environmental assessment is performed. The land use alternatives in this plan would not significantly affect the local apiary business, since most apiary sites are located on private lands.

Cultural Resources

Cultural resources were not identified as an issue for the purposes of this planning document. However, the public is keenly interested in the protection, conservation, and study of these resources.

Prior to the approval of any Federal undertaking on public lands, the BLM is obligated to comply with the National Historic Preservation Act. Section 106 of the act (as implemented under 36 CFR 800 and a Programmatic Agreement among the California State Office of Historic Preservation, the President's Advisory Council on Historic Preservation and BLM) requires identification and full consideration of any historic or prehistoric sites located within a project area or on lands identified to be transferred to non-Federal entities.

The consideration of cultural resources requires an evaluation of resource values and susceptibility to direct, indirect, and accumulated impacts. Significant cultural resources shall not be affected by BLM-authorized actions and undertakings, or transferred from Federal jurisdiction without appropriate impact mitigative measures.

General management practices applicable to cultural resources (Appendix L) and land use management alternatives include: administrative and physical measures to protect sites, monitoring of known sites on lands under long-term BLM administration, surveillance by law enforcement personnel in sensitive areas, and use of qualified organizations or individuals in cooperative studies of cultural resources. Public education, research, the excavation of archaeological resources, and involvement of interested parties (principally Native Americans) conform with the Archaeological Resource Protection Act, other appropriate Federal laws and regulations, and BLM internal guidance manuals and memoranda.

The American Indian Religious Freedom Act protects and preserves the right of native peoples to believe, express, and exercise their traditional religious beliefs. BLM conforms to this expression of First Amendment rights. Prior to authorizing any surface disturbing action or approving land uses, BLM considers Native American concerns, including potential impacts to traditional beliefs and heritage values. Analysis of these specific concerns occurs during the preparation of activity plans, project plans, and associated environmental analyses. Native American input has been solicited in the development of this RMP.

All public land cultural resources known or anticipated to occur within the management unit are or will be classified according to the following use categories: 1) scientific use; 2) conservation use; 3) management use; 4) sociocultural use; 5) public use; or 6) discharge use (see definitions in Appendix L). Classifications may change as new data become available.

These concerns have been considered throughout this document. The lack of imminent significant threats to cultural resources, as well as the legal requirements for protection, led to the determination that further analysis was unnecessary.

Forestry

The BLM manages less than .05% of the commercial forest land located within the geographical boundaries of the resource area. Recently there have been no annual timber harvests within the planning area. Any possible impact to the regional economy is insignificant. Any changes caused by modifying land-use management would not appreciably alter this minor contribution. Any forest management practice described in any of the alternatives will conform with the Timber Management Environmental Assessment for Sustained Yield Unit 15 (USDI, 1981).

Fuels Management

Presently the fuels management program does not anticipate any significant changes in fire management or in its effects or impacts on other resources. Fire management is used as a tool in managing and protecting many

resources within the Caliente Resource Area. Wildland fire suppression objectives include minimizing the acreage burned, the damage, and the cost. These objectives are successful and have proven their effectiveness by helping to minimize natural resource loss. Individual strategies are developed for all wildland fires escaping initial attack, keeping long term environmental protection in mind. Any fuels treatment project generated, whether it be mechanical or by Prescribed Fire (hazard reduction), must undergo NEPA analysis with Area Manager approval. The process helps ensure that the best objectives and alternatives are chosen for each project.

Hazardous Materials

The impacts to public land resources from hazardous materials were not considered to be a topic that needed separate analysis. Impacts may result from oil and gas development, mining, pesticide applications, and by unauthorized dumping. These threats were addressed throughout the document in the appropriate sections.

Local Agency Revenues

Presently the BLM makes annual payments in lieu of taxes to counties containing BLM administered public land. Although substantial land tenure adjustments are recommended by some alternatives in this plan, except for those within the Coast Management Area overall Federal acreage within the individual counties will show little change. Also, BLM public lands make up a small percentage of the total acreage in each county, so that any impacts to local agency revenues are expected to be insignificant.

Paleontological Resources

The Caliente Resource Area has several locations that have significant paleontological values. Fossils are afforded protection through State and Federal legislation. Increased protection is proposed in this document through designation of several fossil bearing locales as ACECs. The lack of any identified threats, both past and future, and the increased protection that has been proposed in conjunction with other resource values, minimize the need to address this resource as a distinct topic.

Scenic Quality

The scenery and landscapes on public land in the Caliente Resource Area have been inventoried and classified according to BLM's visual resource management (VRM) process. The visual resource classes are based on consideration of scenic quality, visual sensitivity and distance zones. All lands have been placed into one of four visual resource classes (I,II,III or IV) that represent the relative value of the visual resources. The more scenic or sensitive an area, the lower is its class number. Additional detail is provided in Appendix H-2. Scenic values in the resource area are varied. Generally, all wilderness areas are Class I. The more scenic classes are also found in wilderness study areas, the forested lands of the south Sierras, the Carrizo Plains Natural Area and some ACECs. The higher classes occur in previously degraded landscapes such as the oil fields and the urban-interface. A major consideration in all alternatives is to protect the designated visual management class so not to degrade its value. Consideration will be given to enhance the visual quality of certain areas such as the Keyesville area through resource rehabilitation.

Socioeconomics

Socioeconomics were considered at length prior to making a decision not to include them as a separate topic. Potential impacts, especially from oil and gas development and livestock grazing, were thought to justify such an action. As analysis proceeded, impacts were found to be less than first anticipated. After due consideration, it was decided to address any socioeconomic impacts along with other impacts to a given activity.

Soils

No proposed land use allocations would

significantly degrade nor remarkably improve soils stability and condition within the planning area. Impacts to soils would be considered prior to BLM approval or authorization of any surface disturbing activity. All activities would still continue to comply with BLM soil resources management policies, State of California soil conservation standards and rules, and any local regulations.

Urbanization / Open Space

None of the land use alternatives in this plan would significantly inhibit or promote urban growth. The great majority of the public lands in the resource area are not near urban areas. At the present time, cities and communities in this resource area have sufficient private land surrounding them on which to expand, so that they are not constrained by public lands. The parcels identified for disposal are almost entirely in a rural setting, well removed from urban centers. Disposal of these parcels is not expected to significantly increase urban growth or detract from open space.

Utility Corridors and Communication Sites

Utility corridors throughout the resource area are incorporated into this plan. They include those occupied corridors delineated in the Western Regional Corridor Study of 1986. Public land in the resource area located within these corridors is an insignificant amount, and any disposal of these public lands is not expected to constrain or improve the use of the corridor. Due to the scattered distribution of public lands and the availability of alternative routes, demand for new utility corridors has not materialized. New requests within existing designated corridors will be authorized by right-of-way, a discretionary action. New authorizations outside of existing designated corridors will be evaluated on a case-by-case basis. Therefore, this plan is not expected to constrain future development.

There are 12 communication sites authorized by 18 rights-of-way within the resource area. They are located on approximately 94 acres of public land, less than .02% of the public land surface in the resource area, and thus represent a very minor use of the public land on an acreage basis. As in the past, it is anticipated that a minority of new sites will be located on public lands. Specific locations for new sites are identified under certain alternatives in this plan. This plan is not expected to significantly constrain the use of present sites, nor inhibit the establishment of new sites.

Watershed

The existing public lands comprise a minor fraction of virtually any watershed within the Caliente Resource Area, and water yields from these public lands are comparatively low due to the generally low precipitation. The great majority of the perennial creeks and rivers in the area derive their waters from the National Forests or National Parks. Related discussions may be found in the water resources portions of this plan.

Wilderness

The re-evaluation of wilderness area recommendations is not part of this planning effort. Recommendations for future wilderness management of Caliente Resource Area were previously developed in the California Statewide Wilderness Study Report Volume I, 1990; Wilderness Recommendations, Central California Study Areas, Final Environment Impact Statement, 1987; and Wilderness Recommendations, Central California Section 202 Wilderness Study Areas, Final Environmental Impact Statement, 1987 and 1988. These reports, with their recommendations, are being forwarded through administrative channels for Congressional consideration.

The Wilderness Study Areas in the Caliente Resource Area are:

Garcia Mountain, CA-010-012 (80 acres)

Sheep Ridge, CA-010-022 (5,102 acres)

Milk Ranch, Case Mountain, CA-010-023 (four separate parcels totalling 8,970 acres)

Owens Peak, CA-010-026 (25,514 acres)

Sacatar Meadows, CA-010-027 (17,612 acres)

Domeland, CA-010-032 (2,223 acres)

Rockhouse, CA-010-029 (35,000 acres)

Caliente Mountain, CA-010-042 (18,083 acres)

Piute Cypress, CA-010-046, (3,453 acres)

Machesna, CA-010-108, (70 acres)

There are presently two designated Wilderness Areas in the Resource Area. They are Santa Lucia (1735 acres) and Machesna Mountain (120 acres). Only Congress can alter these designations.

All wilderness study areas will be managed under the WSA Interim Management Policy (IMP). If or when these lands are released from study by Congress, they will be managed according to the decisions within this RMP.

Wild Horses and Burros

Wild horses or burros are not known to exist on public land within the Caliente Resource Area. Therefore, decisions regarding the management of wild horse or burro herds will not be needed.

Wind Energy

Development for wind energy is not considered a significant impact topic. There are no existing facilities authorized on public land within the resource area, and there is currently only one potential area for wind energy development on the public land. Also, the land use alternatives in this plan are not expected to significantly inhibit or enhance the wind energy development on private lands in the area. Proposals for new development may be considered and authorized by right-of-way, a discretionary action. Specific sites considered for new development are identified by alternative in this plan.

Resource Descriptions

The names of resource categories can often be misleading. One name may include several different resources. These groupings roughly correspond with the alignment of programs within the BLM. The reader is urged to read the following list to minimize confusion:

Cultural: Cultural, archaeological, and historical resources, and Native American values.

Lands: Land acquisition & disposal, rights of way, communications sites, wind energy, land use permits & leases.

Livestock Grazing: Authorized cattle and sheep use of public lands, along with associated facilities (fences, wells, etc.).

Minerals: Geothermal, locatable minerals, solid leasable minerals, and mineral materials.

Oil and Gas: Includes exploration, development, production, and reclamation.

Recreation: Camping, hunting, OHV use, visual resource management, wilderness management, and wild and scenic river management.

Wildlife: Includes habitat improvement, as well as management of T&E animal species, game species, and non-game species.

Vegetation: Includes T&E plant management and biodiversity.

Relation to Other Plans and Programs

Land Use Plans. Two land use plans were developed for the Caliente Resource Area - the South Sierra Foothills Management Framework Plan (MFP) in 1983 and the Coast/Valley

Resource Management Plan (RMP) in 1984. The South Sierra Foothills MFP is known as a transitional MFP, and like the Coast/Valley RMP it was issue-driven but did not have an Environmental Impact Statement (EIS) prepared for it (except for the livestock grazing and wilderness elements). The Coast/Valley RMP was developed with an EIS, which covered all elements of the plan. Both planning efforts were done to meet court orders resulting from the 1975 Bureau-wide grazing suit between the Bureau and the Natural Resources Defense Council (NRDC).

An RMP covering the entire Resource Area is needed to respond to new issues, address concerns stemming from BLM Supplemental Program Guidance which was developed after the preparation of the existing plan, and to provide complete compliance with the National Environmental Policy Act of 1969 (NEPA).

Livestock Grazing. During the pre-planning phase for this document, it was believed that the existing livestock related planning decisions could be carried forward unchanged. However the listing of additional species of plants as threatened or endangered has required a new set of decisions that address livestock grazing. This situation is fully analyzed within this document.

Oil & Gas. The BLM is responsible for administering Federal mineral estate underlying lands managed by other agencies, such as the U.S. Forest Service (USFS) and the National Park Service (NPS). The BLM only administers subsurface or down-hole activities occurring on oil and gas leases on these lands. The decision to lease these lands is made by the surface management agency; some lands may never be leased. Stipulations for fluid mineral leasing required by the surface management agency will be considered to be minor constraints.

This document analyzes the impacts of leasing and development on all federal mineral estate outside of Department of Energy, U.S. Fish and Wildlife Service, NPS and USFS boundaries. All NPS lands within the resource area are closed to leasing. The specific and cumulative impacts that would occur from potential leasing and development on USFS lands would be analyzed in a USFS Land and Resource Management Plan and EIS. If further analysis is necessary prior to leasing, impacts on lands administered by other agencies may be analyzed by that agency, or by the BLM. In all cases, actions will comply with the National Environmental Policy Act.

Wilderness. Determinations with respect to Wilderness suitability within the Caliente Resource Area were made for most lands through the Central California Study Area Wilderness Recommendations Final Environmental Impact Statement (USDI, 1987), and the Section 202 Central California Study Area Wilderness Recommendations Final Environmental Impact Statement (USDI, 1987).

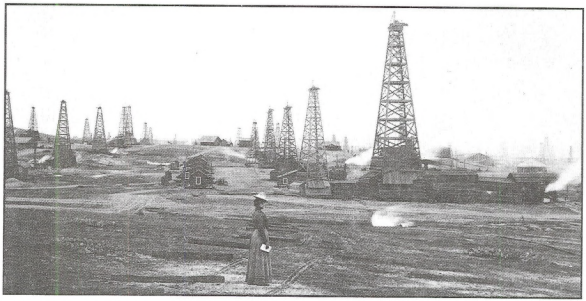
It was assumed for the purpose of analysis that the areas recommended suitable for Wilderness would eventually be designated. It was also assumed that those parcels not recommended as suitable would not be designated by Congress. In the meantime, the Interim Management Policy for Wilderness Study Areas will be adhered to in the management of these areas. If the decision of Congress differs from the recommendations, a plan amendment to the RMP may be required.

Wild & Scenic Rivers. This draft RMP/EIS does not include suitability determinations for Wild and Scenic River designation. However, an inventory of potentially eligible rivers was conducted prior to the compilation of this document. The information was analyzed, and eligibility for designation was determined. This information, along with preliminary classifications and an explanation of the process, are included in Appendix H-3.

It is anticipated that suitability recommendations will be included in the final RMP. Until final determinations are made, all

eligible rivers will be managed to ensure that no degradation occurs to any features which contribute toward making that river eligible.

Chapter 2
Affected Environment



Kern River Oilfield in 1901 (Kern County Museum)

Chapter 2 - Affected Environment

The Affected Environment provides a description of the primary resources and uses found on public lands in the Caliente Resource Area. This information is used to help assess the impacts of the various alternatives. Each resource includes a general description. In most cases, it is followed by descriptions of the resource within each of the three management areas. Although the description for any single resource may not differ significantly between two management areas, the overall blend of values within each management area is quite distinct.

Air Quality

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. These levels are expressed in units of concentration, generally parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The significance of pollutant concentration is determined by comparing it with an appropriate Federal or state standard. Federal standards represent the allowable atmospheric concentrations at which the public health and welfare are protected, and include a reasonable margin of safety. State standards address the same pollutants, but more stringently, e.g. California's PM_{10} standard (PM_{10} refers to particulate matter less than 10 microns in diameter). Federal and State air quality standards for carbon monoxide, lead, nitrogen oxide, ozone, sulfur dioxide (SO_2), and inhalable particulate (PM_{10}) are shown in Table 9.

Attainment areas are provided with a designation which relates to maximum pollution concentrations allowed. Class I offers the most protection, and Class III the least. No Area in California has less than a Class II designation; all of the Caliente management areas are in this category.

Areas which consistently violate minimum Federal standards because of man-caused activities are classified as "non-attainment" areas. A plan to reduce ambient levels to below the maximum pollution limits must be implemented in these areas.

The maximum allowable concentration increases under Prevention of Significant Deterioration (PSD) regulations are specific to the classes described above. Prevention of Significant Deterioration regulations, Title 40 of the Code of Federal Regulations (CFR) Parts 51.24 and 52.21, were established to provide for the review of new major stationary (as opposed to mobile) sources of air pollution and modifications to major stationary sources, to enable large sources to be constructed without significant adverse deterioration of clean air areas. PSD requirements apply only to attainment pollutants emitted from these stationary sources. A pollutant is considered in non-attainment if its Federal primary standard has been exceeded in a geographic area more than once a year.

Common activities on public lands which generate air pollution include vegetative manipulation, controlled and incident fires, oil and mineral development, dust emissions from roads, and off highway vehicle use.

Respective Air Pollution Control Districts (APCD) monitor the air and suggest plans for achieving air quality objectives through State Implementation Plans. Some of these plans are in place, while others are in the process of being developed.

Air Quality - Coast Management Area

The Coast Management Area is located within the South Central Coast Air Basin (SCCAB). The SCCAB is comprised of three coastal counties (San Luis Obispo, Santa Barbara, and Ventura) situated north of the Los Angeles Basin in south central California. The area

STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS
(micrograms per cubic meter)

	AIR QUALITY STANDARDS[1]					AIR BASIN STATUS WITH RESPECT TO CALIFORNIA AIR QUALITY STANDARDS[2]			
	Federal			CALIFORNIA		SJVUAPCD		SCCAB	
Pollutant	Averaging[3] Time	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary
Carbon Monoxide	8 hours	10,000	10,000	10,000	--	N	N	A	A
	1 hours	40,000	40,000	40,000	--	N	N	A	A
Lead	Quarterly	1.5	1.5	--	--	--	--	--	--
	(24 hrs/1 mo)	--	--	1.5	1.5	A	A	A	A
Nitrogen Dioxide	Annual (Arith.)	100	100	100	--	N	N	A	A
Oxidants (ozone)	1 hour	235	235	160	--	N	N	N	N
Sulfur dioxide	Annual (Arith.)	80	--	--	--	UNC	UNC	A	A
	24 hours	365	--	--	--	UNC	UNC	A	A
	3 hours	-	1,300	700	--	UNC	UNC	A	A
Inhalable Particulates (PM_{10})[4]	Annual (Arith.)	50	50	30	6	N	N	N	N
	24 hours	150	150	50	--	N	N	N	N

Sources: National Primary and Secondary Ambient Air Quality Standards (40 CFR 50 *et. seq.* as revised July 1, 1987). Requirements for Preparation, Adoption and Submittal of Implementation Plans (40 CFR 51.156, as revised July 1, 1985).

Notes: [1] Ambient standards are maximum levels allowed to protect public health (primary) or public welfare (secondary).

[2] N - Non-attainment, A - Attainment, UNC - Unclassified

[3] Short-term standards (those other than Annual or Quarterly) are not to be exceeded more than once each year, except the Federal ozone and PM-10 levels which are not to be exceeded more than once per calendar year.

[4] PM_{10} is the notation for particulate matter less than 10 microns in diameter.

Table 1

contains 8,800 square miles, or approximately 5% of the total area of California. The air basin extends from the crest of the Coast Mountain Range south and west to the Pacific. It is approximately 175 miles in length and averages over 50 miles in width.

Air resource management of the basin is by county-based Air Pollution Control Districts (APCDs): The Ventura County APCD, the Santa Barbara County APCD, and the San Luis Obispo County APCD.

Good air drainage, along with the influences of coastal meteorology, result in the SCCAB having significantly better air quality than the San Joaquin Air Basin, where most of the Caliente Resource Area is situated. The SCCAB is in attainment for carbon monoxide, lead, nitrogen dioxide and sulfur dioxide. However, the basin exceeds National and State Ambient Air Quality Standards for PM_{10} and ozone. Studies conducted under contract by the California Air Resources Board (CARB) show that transport of pollutants originating out

MAXIMUM ALLOWABLE POLLUTANT CONCENTRATION INCREASES UNDER FEDERAL PSD REGULATIONS

		Maximum Allowable Increase ($\mu g/m^3$)
Class I Areas	Particulate Matter	
	Annual geometric mean	5
	24-hour maximum	10
	Sulfur Dioxide	
	Annual arithmetic mean	2
	24-hour maximum	5
	3-hour maximum	25
Class II Areas	Particulate Matter	
	Annual geometric mean	19
	24-hour maximum	37
	Sulfur Dioxide	
	Annual arithmetic mean	20
	24-hour maximum	91
	3-hour maximum	512
Class III Areas	Particulate Matter	
	Annual geometric mean	37
	24-hour maximum	75
	Sulfur Dioxide	
	Annual arithmetic mean	40
	24-hour maximum	182
	3-hour maximum	700

Source: 40 CFR 52.21

Note: Class I areas are regions in which the air quality is intended to be kept pristine, such as national parks and wilderness. All other lands are initially designated as Class II. Individual states have the discretion to redesignate Class II lands to Class III, in order to allow maximum industrial use.

Table 2

of the Los Angeles Basin is contributing to SCCAB air pollution.

Air Quality - Valley Management Area

The Valley Management Area lies primarily within portions of Kern, King, and Tulare Counties. These counties are in the San Joaquin Valley Air Basin.

The San Joaquin Valley Air Basin (SJVAB) contains 24,800 square miles, or approximately 16% of the total area of California. It extends from the northern boundary of San Joaquin County south through the valley to the southern edge of Kern County. The basin extends from the crest of the Sierra Nevada Mountains west including all of the San Joaquin River watershed, down across the valley floor and up to the crest of the Coast Range Mountains. It is approximately 450 miles in length and 60 miles in width. The Valley and South Sierra Management Areas are located within this air basin.

For the last two decades, air pollution levels in the basin have consistently exceeded Federal and State standards. As stated in the 1988 California Clean Air Act, "attainment of these health-based standards is necessary to protect public health, particularly of children, older people, and those with respiratory diseases". With the exception of lead, national and state air criteria pollutants are all at excess levels,

and the levels and excesses are such that the basin is categorized as serious. However, some improvements in air quality have been realized with the implementation of control measures resulting from the passage of the Clean Air Act and the stricter California State Pollution Control Standards.

In addition to pollutants produced locally, the basin, closed by mountain ranges on the east, south and west, is subject to pollutants generated in upwind air basins in the San Francisco Bay Area, which are transported southeast by the prevailing winds. Excesses often result when inversion layers restrict vertical mixing of trapped air.

In March of 1991, the basin, comprised of eight counties, grouped together and formed the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) in an effort to provide for unified management of the air resource within the basin.

Air Quality - South Sierra Management Area

Air quality information and management are similar to that described for the Valley Management Area. Primary differences are due to the fact that the South Sierra Management Area is situated at higher elevations. Depending on the elevations of inversion layers, when they occur, air quality above those layers can be markedly better. However, when atmospheric instability allows for the release of smog from the valley, pollutants waft over the Sierras into the Mojave Desert region, increasingly so towards the south. Monitoring of air and effects to vegetation has confirmed the transport of ozone and other pollutants at various elevations along the Sierra Mountain Range.

Cultural Resources

Cultural resources include two distinct kinds of resources: (1) "Cultural properties" which are definite physical locations that can be identified by the presence of artifacts or other material evidence, such as archaeological and historical sites; and (2) "traditional lifeway values", which are a social group's shared beliefs and practices regarding ways that the land and land features contribute to the group's sense of well-being or identity. Examples of this latter category might include a mountain range considered to be sacred or plants used ceremonially by Native Americans, or trails, which were used ceremonially, but otherwise without artifactual remains.

Cultural properties are those fragile and non-renewable remains of human activity, occupation, or endeavor identifiable through field inventory (survey), historic documentation, or oral evidence, reflected in archaeological, historic, or architectural sites, structures, or places with important public and scientific uses. They may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. Cultural properties are concrete, material places and things that are identified, classified, ranked, and managed through the system of inventory, evaluation, planning, protection, and utilization as described in the BLM 8100 Cultural Resource Management manual. These cultural properties, including both prehistoric and historic remains, represent a part of the continuum of events from the earliest evidences of man to the present.

Cultural resources are diversified and widely distributed in the Caliente Resource Area. Records kept by the State of California indicate that over 10,137 cultural properties have been identified in the area. Over 250 of these properties are known to be on BLM lands. Geographically, the cultural resources extend from the western side of the Great Basin throughout the interior valleys, and to the south central coast of central California. Site types include lithic scatters, limited-use areas, temporary and extended stay camps, house and village sites, rock art locales, mortar holes, quarries, and other manifestations. The sites and their distribution patterns display evidence of seasonal and yearlong occupation in many areas for several thousand years by various diverse cultural groups. Evidence of the Paleo-Indian Period (circa 11000 B.C. to 9000

B.C.) can be found at sites located at Tulare Lake, Buena Vista Lake, the Tehachapi Mountains, and other areas. Major sites of the Archaic Period (circa 9000 B.C. to 2000 B.C.) are more numerous and typified by remains found in the Tulare Lake, Diablo Canyon, Carrizo Plain, Buena Vista Lake, and the Santa Barbara areas. Examples of sites from the late prehistoric Pacific Period (circa 2000 B.C. to A.D. 1769) are to be found at Cambria, Twitchell Reservoir, Buena Vista Lake, Kern, Elk Hills, Caliente Mountains, Buena Vista Hills, Temblor Range,Cachuma Reservoir, Dos Pueblos, Lake Isabella, Tehachapi, Carrizo Plain, and numerous other areas.

The Caliente Resource Area encompasses tribal territories once occupied by indigenous groups such as the Chumash, Salinan, Yokuts, Western Mono, Tubatulabal, Kawaiisu, Kitanemuk, Tataviam, Shoshone, and Piute. All are known, ethnographically, to have been present at various times. Present day communities of Native Americans live at various locales within the area.

Major Historic Period (AD 1769 to present) sites exist throughout the area. Historic cultural properties include features and structures from the Spanish Colonial, Mexican Republic, California, and United States eras. Euro-Americans, Native Americans, and Asian Americans have all contributed to a rich cultural heritage. Mission buildings, farms, ranches, mines and mineral workings, lumber mills, oil derricks, homes, villages, towns, irrigation networks, and other physical remains are present in large numbers. Examples are the coastal Spanish Colonial missions, the early oil wells of Taft, the mining town of Keyesville, the farms of Kern County, and the ranches of the Carrizo Plain.

Many sites have received identification on local, state, or national registers, but the vast majority of both prehistoric and historic sites have not been formally evaluated or nominated. The greatest danger to prehistoric and historic sites is from individuals who collect artifacts, dig at sites or otherwise damage them. Removing cultural materials or damaging sites forever steals pages from the cultural historic record of all Americans. Past protective efforts include patrols by rangers and staff archaeologists, posting with signs, installation of fences, road closures, and site adoption programs by concerned individuals. However all such efforts have been limited by funding and manpower. Education and sensitivity exposure through interpretative programs are viewed as viable methods of protecting cultural resources for all Americans.

BLM complies with the provisions of Section 106 of the Historic Preservation Act for all proposed actions and undertakings which may affect cultural resources. Inventories are completed, properties assessed, and decisions made in consultation with the State Historic Preservation Officer, the Advisory Council on Historic Preservation, and, if appropriate, other parties, such as Native American Groups.

Efforts are made to consult with local Native American communities whenever actions or undertakings might affect "Traditional Lifeway Values". Their needs and concerns are considered in the decision making process whenever they are made known.

Cultural Resources - Coast Management Area

The dominant cultural resource in the management area on public land is the cluster of prehistoric archaeological sites (28) at Point Sal. The area is of high interest to researchers and recreational users due to the cultural and natural resource values. Chumash and Salinan were the two primary pre-contact Native Californian Indian tribal groups that occupied the management area. Prehistorically, the subsistence base of the indigenous groups was marine food specialization. They subsequently adapted to a more diversified subsistence pattern that included hunting and gathering of land resources. A number of descendants of these cultures reside within the management area today. The area is believed to have high sociocultural values to contemporary Native Americans. Public and private land at Point

Sal is currently being evaluated and considered for acquisition and management through an initiative of the state and county.

Four (4) additional archaeological sites have been identified in the other parcels of BLM lands within this management area.

Cultural Resources - Valley Management Area

The earliest known presence of indigenous people in this management area was during the Paleo Indian period 12,000 to 8,000 years ago. The shorelines of ancient Tulare and Buena Vista Lakes have revealed fluted "clovis-like" projectile points of this period.

The Native American cultural groups that primarily occupied the management area ethnohistorically were the Yokuts and the Chumash. The Southern Valley Yokuts practiced a diversified subsistence pattern that emphasized hunting waterfowl, fishing, and gathering of shellfish, roots, and seeds. The interior Chumash could not rely upon marine resources to the degree that the coastal Chumash did; consequently, they practiced a seasonal round that maximized exploitation of various food resources in their territory. Large quantities of acorns, pinyon nuts, seeds, and other plant parts were collected. Hunting (deer, elk, pronghorn, etc.) and fishing also supplemented their diet.

Ninety-four archaeological sites on BLM lands have been identified within the management area. The most common types of prehistoric resources in the management area are associated with habitation, ceremonial activities, and food processing. The foremost cultural areas of importance known on public land are the sites located on the Carrizo Plain and at Goose Lake. Although only limited base data is currently available, other key areas considered likely to be culturally sensitive on public land are in the Cuyama Valley, Caliente Range, Cameros Canyon area, and the San Emigdio Creek area. A number of sites on the Carrizo Plain have high interest to general visitors, educational groups, researchers, and contemporary Native Americans. The overall area and Painted Rock in particular have sociocultural values to the Native Americans.

Historically, contact between the Yokuts and the Europeans was first documented in 1772 when Pedro Fages led a small band of Spanish soldiers through the Tejon Pass into the San Joaquin Valley. They possibly passed through the Carrizo Plain on the way to San Luis Obispo.

In 1827, Jedediah Smith, the first American to reach central California across land, passed through the San Joaquin Valley. California was annexed by the United States in 1850. As a result of European diseases, the Native American population was devastated by epidemics in the 1830's. The few remaining Indians went to the Tejon Reservation and the Fresno Reservation. When these reservations failed to prosper, the Indians were moved to the Tulare River Indian Reservation in 1859 (located adjacent to the management area). In 1970, the population on this reservation was 325 people. Presently, several hundred people claim Chumash ancestry, most of whom live outside the management area at the Santa Ynez Indian Reservation and the Santa Barbara region. A small but significant number of Native Americans reside in the management area outside of formal reservations.

The exploitation of oil resources in the San Joaquin Valley began in the 1860's. The initial oil pit was dug in 1863 near Reward to a depth of ten feet. By the 1890's, refining oil near McKittrick became commercially productive. In 1899, the discovery well at Kern River Oilfield started the first major oil boom in the region. One of the most spectacular oil gushers in the valley was at the Lakeview Gusher Number 1 in the Midway Sunset Oilfield in 1910.

Cattle and sheep grazing were introduced in the management area in the mid 1800's. Stockraising soon spread throughout the area, becoming an important industry in the region, and a long lasting dominant economic pursuit in the Carrizo and Cuyama Valleys.

Although the gold rush of 1849 was located on lands outside this management area, it resulted in a large influx of Americans to California. By 1855, gold mining was on the decline while agriculture was on the increase as a major economic industry in the region. A large amount of these people eventually settled and developed agriculture in the management area.

Historical resources on public land in the management area are primarily those associated with early exploration and development of oil resources. Due to past reclamation practices, the integrity of these sites are typically severely degraded. Local historical groups and institutions, researchers, and writers have expressed interest in the history of oil development in this region.

Cultural Resources - South Sierra Management Area

Ethnographically, the management area was used primarily by four indigenous groups; the Western Mono, the Yokuts, the Tubatulabal, and the Kawaiisu. Their subsistence pattern consisted of fishing, hunting, and gathering of food/vegetal resources. Other groups, such as the neighboring Paiutes, utilized the area in times of stress, or as part of a seasonal pattern.

The principal prehistoric resources in the management area consist of habitation, ceremonial, burial, and procurement sites. One hundred twenty four (124) archaeological sites have been identified on BLM lands within the management area.

The key cultural sites of significance are the Long Canyon Indian Village Site and sites along the South Fork of the Kern River, Canebrake Creek, Spanish Needle Creek, Three Rivers, Sand Canyon/Horse Canyon, and the Chimney Peak region. The majority of these sites are of high interest to visitors, educational groups, and the Native Americans. Contemporary Native Americans place high sociocultural values on several known cultural sites and locations in the vicinity of the South Fork of the Kern River, Spanish Needle Creek, Blue Ridge, Sand Canyon/Horse Canyon, and the Chimney Peak - Walker Pass traditional pinyon pine nut gathering region.

Historically, the focal areas or sites of primary importance include the Walker Pass National Historic Landmark National Register property, the Advance Colony site along the North Fork of the Kaweah River, and sites associated with gold mining in the Keyesville area. Historical interest is expressed by educational and visitor use to these areas.

Forestry

All public lands in the resource area containing woodlands of commercial quality lie within the South Sierra Management Area. Commercial forest lands total 2,200 acres, all of which are located in the Case Mountain / Milk Ranch Peak area. Most of these lands are located in the Case Mountain Wilderness Study Area; therefore production of forest products is prohibited. Commercial forest lands totalling 480 acres of acquired lands containing giant sequoia groves are found on Case Mountain. Utilization of forest products has been limited to the annual harvest of 50 Christmas trees upon the acquired lands by a non-profit organization.

The timber industry in past times has logged approximately 2,500 acres of Federal lands located on Case Mountain and Milk Ranch Peak. Logging was also conducted on adjacent private lands. Few conflicts were identified when the timber was harvested nearly 40 years ago.

The goal of logging was to harvest old growth mixed conifer stands. These included giant sequoias located on private inholdings on Case Mountain. Other species harvested were incense cedar, sugar pine, ponderosa pine, white fir, and Jeffrey pine. The harvested logs were trucked off the mountain and delivered to the mills located in Dinuba or Terra Bella, California. All of the harvesting was accomplished by tractor logging methods. Areas too steep and rocky for tractor operation

were not logged.

The estimated volume of timber harvested prior to 1980 was approximately 60 million board feet for Case Mountain and Milk Ranch Peak combined. Much of the logging occurred during the early 1950's. The Bureau acquired 480 acres of privately owned land in 1980 which appeared to have been lightly logged several decades before. The seller still retained the rights to harvest one-half the remaining merchantable timber, excluding giant sequoia. In 1981 three million board feet of timber were harvested and trucked to the mill located in Dinuba, California.

Other Federal lands appear untouched by logging only in areas too steep for tractors. Many areas appear to have been lightly logged approximately 40 years earlier. The private inholdings, (other than the 1980 acquired lands), have been heavily harvested, and all old growth mixed conifers and giant sequoias have been removed. Those areas were heavily stocked with mixed conifer saplings, poles, and trees ranging up to 28" dbh size.

A large lightning caused fire in late August, 1987 burned over much of Case Mountain. The fire totalled 4,500 acres and burned with raging intensities for approximately two weeks. The three giant Sequoia groves were not damaged by fire, and most of the Federal lands were subject to low intensity burning that stayed on the ground. The private inholdings fared much worse. There the fire crowned out and completely destroyed large acreages of conifers. The lumber company who owned most of the private inholdings then conducted a salvage logging operation and replanted with mixed conifer stock in spring 1988. Included in the replanting were 18,000 seedling giant sequoias. Most of these inholdings have now been purchased from the lumber company by a private individual. It is estimated that at least 30 years are needed before any merchantable timber can be harvested from the private lands. There are no plans for any timber harvests on public lands in the near future.

Commercial forest lands are not found in the Chimney Peak - Walker Pass area. Forest products such as pinyon nut collecting, Christmas Tree harvesting (100 pinyon trees annually), and fuelwood gathering are permitted in areas located outside of any wilderness study areas.

Lands

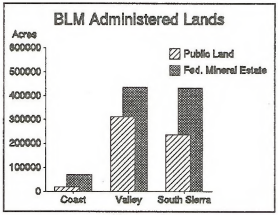


Figure 2

The Caliente Resource area includes public land and mineral ownership managed by the Bureau of Land Management in Kern, Tulare, Kings, San Luis Obispo, Santa Barbara, and Ventura Counties. It includes 570,000 acres of public land surface (most with mineral rights) and 452,000 acres of Federal reserved mineral rights. Many of the public lands are scattered and range in size from 0.1 acre to 1,000 acres.

The resource area deals daily with the management conflicts associated with multiple uses on the public lands. These include authorizations for rights-of-way, leases, permits, etc. Of special concern is unauthorized use resulting from urban growth. This includes dumping of trash and hazardous materials, unauthorized agricultural development, occupancy trespass, and a variety of unauthorized surface disturbing activities.

Lands - Coast Management Area

The Coast Management Area is comprised of BLM-managed public land scattered

throughout San Luis Obispo, Santa Barbara and Ventura Counties. It encompasses approximately 19,000 acres of public land surface with mineral rights and approximately 52,000 acres of Federal reserved mineral estate. The management area extends from the La Panza Range and Sierra Madre Mountains to the Pacific Ocean, is bordered at the northern end by Monterey County and at the southern end by Los Angeles County. The management area includes the Channel Islands National Monument, one national forest, four military installations, various state parks and several lakes and reservoirs. An area of note is Point Sal, an Area of Critical Environmental Concern containing highly sensitive and unique resources on public land.

The public lands in this management area are typically scattered and isolated, with parcels of an average size of about 80 acres. Very few of these parcels have any legal access, making management very difficult.

This management area continues to undergo a steady growth of rural-residential developments, which increasingly interface with the scattered, rural public lands. All of the management area is within a three-hour drive of the Los Angeles metropolitan area (5 million people).

Types of land use authorizations in the management area vary. They include over 70 rights-of-way for pipelines, roads, and utility lines, and Recreation & Public Purposes Act sales or leases. Approximately 20% of the rights-of-way are for oil or gas pipelines, one being the All American Pipeline. Several land exchange actions have occurred and are being developed in an effort to provide large blocks of public land in threatened and endangered species habitat in the Carrizo Plains Natural Area, and to reduce the number of scattered parcels in the management area. Approximately 10,000 additional acres of public land in the management area have been identified as available for exchange in this effort. There is significant public interest by adjacent landowners in acquiring many of these scattered parcels. Documented cases of unauthorized use include roads, pipelines and trash dumps. Withdrawals in the management area exist for the Los Padres National Forest, power sites; and water projects.

The Western Regional Corridor Study, 1986, identified several occupied utility corridors and recommended one new corridor in the management area.

The State of California has expressed interest in acquiring public land for expansion of Montana de Oro State Park. San Luis Obispo County is interested in developing and maintaining some public land around Santa Margarita Lake for recreational opportunities and watershed protection. The State of California is also planning the development of a major water facility, the Coastal Aqueduct Project, through the management area. This project would cross approximately one-half mile of public land near Santa Margarita.

Lands - Valley Management Area

The Valley Management Area is comprised of BLM-managed public land in portions of several counties including Kern, Tulare, Kings, San Luis Obispo, and Santa Barbara. It encompasses approximately 233,000 acres of public land surface with mineral rights, 80,000 acres of public land without mineral rights, and 204,000 acres of Federal reserved mineral estate. The management area extends through the southern San Joaquin Valley with the Caliente Mountain Range bordering on the west, Fresno County bordering at the north, and the Tehachapi Mountains bordering the south. Areas of note include the Carrizo Plain Natural Area in eastern San Luis Obispo County (which includes Soda Lake, Elkhorn Plain, the San Andreas Fault); Reef Ridge Research Natural Area which is protected for valuable scientific resources; Goose Lake ACEC; the Elk Hills Naval Petroleum Reserve; and the major oil fields of western Kern County.

Oil and gas and agricultural development continue to be the main priorities and exert the most use pressure on the public lands in this

management area.

More than 400 right-of-way authorizations exist in this management area. The majority of those are in support of oil and gas development, with approximately one-third being actual oil or gas pipelines, including the All American Pipeline and Mojave Pipeline. With the development of enhanced oil recovery methods, new gas lines are being built in the Kern County oilfields.

The management area contains several utility corridors identified by the Western Regional Corridor Study, 1986. Additionally, various land use authorizations exist for apiary sites and communication sites, as well as some Color-of-Title issues that need to be resolved. There is a lack of access to most of the isolated BLM parcels, of which there are approximately 100 in this management area. Over 170 cases of unauthorized use include roads, pipelines, apiary sites, and trash dumps, which may include hazardous waste.

Several land exchange actions have occurred and are being developed in an effort to provide large blocks of public land in threatened and endangered species habitat in the Carrizo Plains Natural Area, and to reduce the number of scattered parcels in the management area. The Carrizo Plain Project is projected to be ongoing for the next ten years. About 100,000 acres have been acquired to date for the project through direct purchases and land exchanges.

Lands - South Sierra Management Area

The South Sierra Management Area is comprised of BLM-managed public land in the Sierra Nevada Mountains in Tulare and Kern Counties. It encompasses approximately 238,000 acres of public land surface with mineral rights, and 195,000 acres of Federal reserved mineral estate. The management area extends north to south from the Sequoia National Park, along the Sierra Nevada Mountains, to the Tehachapi Mountains in the south. The management area includes the Sequoia National Forest, Sequoia National Park, Mountain Home State Forest, the Tule River Indian Reservation, and various lakes and reservoirs. Areas of note include Blue Ridge, an Area of Critical Environmental Concern containing habitat for the California condor, Lake Isabella Reservoir, the Piute-Cypress Natural Area, and a portion of the Pacific Crest National Scenic Trail.

The urbanizing areas around Lake Isabella, Three Rivers, and Kennedy Meadows are expected to continue their growth, exerting more use pressure on the public lands. This can be expected to increase substantially in the Lake Isabella area when State Route 178 is upgraded to a continuous four-lane highway.

Types of land use authorizations in the management area vary. They include over 150 rights-of-way for pipelines, roads, and utility lines, as well as four communication site rights-of-way, wind energy development in the Tehachapi area and Recreation & Public Purposes Act sales and leases, including active leases for two sanitary landfills, one transfer station and an archery range. Other land use authorizations include apiary site permits, and two lifetime leases in the Keyesville area. Documented cases of unauthorized use include roads, pipelines and trash dumps.

Various withdrawals in the management area exist for the Sequoia National Forest, power sites and water projects. Included in these withdrawals are lands surrounding the Lake Isabella Reservoir recently managed by the U.S. Army Corps of Engineers. Many of these lands have been transferred to the U.S. Forest Service, with the remaining parcels reverting back to the BLM.

Many of the BLM parcels lack access, even administrative access for BLM employees. This is especially true for those parcels in the Lorraine-Havilah area, Case Mountain-Milk Ranch Peak area, North Fork of the Kaweah River, and Tehachapi area. This lack of access makes management of these public lands very difficult. A few road easements and reciprocal rights-of-way have been obtained to

provide access to some parcels.

Several land exchange actions have occurred and are being developed in an effort to provide larger blocks of public land and to reduce the number of scattered parcels in the management area. Approximately 10,400 acres of public land in the management area have been identified for exchange in the previous planning document. Additionally, significant opportunity exists to acquire inholdings in the Chimney Peak and South Fork Kern River areas through exchange or purchase. Many of these areas contain riparian zones and/or cultural resources. There is significant public interest expressed by adjacent landowners in acquiring many of the scattered BLM parcels.

Livestock Grazing

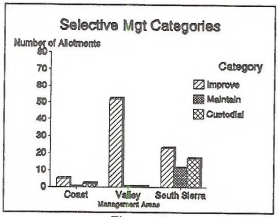


Figure 3

The Caliente Resource Area currently has 110 grazing allotments leased or permitted to 89 grazing operators. The allotments contain 52,933 animal unit months (AUMs) of forage on 456,213 acres of public land. An AUM is the amount of forage needed to sustain a 1,000 lb. cow or the equivalent for one month, and is approximately 800 lbs. of forage at air dry weight. Public lands within these allotments had been classified as either primarily producing forage consisting of annual plants (76% of the allotments), or producing forage primarily consisting of perennial plants (6%), or producing significant amounts of both annual and perennial forage plants (18%).

Allotment management plans (AMPs) that specify multiple resource management objectives and monitoring studies needed to verify that those objectives are being reached, have been developed for most of the larger, high priority allotments. These allotment management plans implement the land use decisions made in the previous land use plan. Appendix D-1 displays the current status of grazing management within the Resource Area under Alternative 4. Figure 3 displays the distribution of selective management categories throughout the three management areas. Appendix D-3 explains selective management categories.

Most of the existing grazing leases and permits have been in place since the 1940s. Livestock grazing has taken place in this part of California since the early 1800s during the establishment of the California missions and the settlement of the Sierras. All three management areas have cow/calf or stocker cattle operations. There are also range sheep operations in the Valley Management Area.

Livestock Grazing - Coast Management Area

There are only seven grazing allotments in the management area. Figure 4 shows the acres grazed versus non-grazed within the management area which is mostly unsuitable for livestock. Five of the allotments are in the "I" category and encompass 3,607 acres and forage, while two are "C" category allotments which encompass 346 acres and provide 39 AUMs of forage. Generally speaking, "I" category allotments are more intensively managed while "C" category allotments receive far less management attention. A more detailed explanation is included in Appendix D-3.

There is one Allotment Management Plan (AMP) in this management area on allotment #00060, Santa Teresa. This AMP was developed in 1985 in coordination with the Soil Conservation Service. The objectives of the plan include residual mulch levels of 700-1000 lbs/acre on slopes of < 30%, and periodic reburning to maintain an early seral stage in

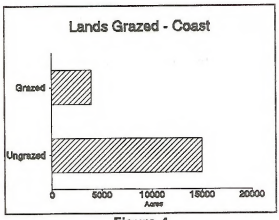


Figure 4

the chaparral community, as well as fence, road and water related range improvements.

Livestock Grazing - Valley Management Area

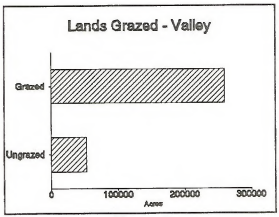


Figure 5

There are currently fifty-two grazing allotments which fall entirely or partially within the Valley Management Area. Figure 5 shows the proportion of acres grazed versus non-grazed within this management area. All fifty-two of these allotments are in the "I" category, encompassing approximately 263,664 acres and providing 38,766 AUMs of forage. There is currently one Allotment Management Plan (AMP) being implemented in the management area on the North Temblor allotment. Following discussions with the California Department of Fish and Game (CDFG) and the livestock operator, some modifications to this AMP are planned in an effort to better manage for upland game shrub cover. There are eight allotments currently covered by the Carrizo Plain Natural Area (CPNA) management plan: Carrizo Ranch, KCL Ranch, Washburn Ranch, Painted Rock Ranch, portion of the Selby Ranch, Goodwin Ranch, Saucito Ranch an the Temblor-Caliente allotment. This leaves 43 "I" category allotments that do not have an AMP.

The Valley Management Area is mostly comprised of the California (Mediterranean) annual range type. All "I" category allotments within this annual range type are managed for specific residual dry matter (mulch) levels. Currently designated minimum mulch levels on 0-25% slopes are detailed below. The remainder of the "I" allotments in the management area will have mulch levels designated upon completion of the RMP.

North Temblor	00015	500 lbs/ac.
Washburn Ranch	00018	500 lbs/ac.
Painted Rock Ranch	00026	500 lbs/ac.
KCL Ranch	00029	500 lbs/ac.
Sulphur Canyon	00031	500 lbs/ac.*
Selby Ranch	00044	500 lbs/ac.*
Temblor-Caliente	00053	500 lbs/ac.*
Chico Martinez	00063	400 lbs/ac.*
Carrizo Ranch	00070	500 lbs/ac.
Chimineas Ranch	00073	500 lbs/ac.*
Maricopa Range	00096	500 lbs/ac.*

* = to be implemented upon completion of activity plan.

Currently, the Valley Management Area is the only one to have any sheep grazing allotments. The Valley is used extensively for this type of livestock grazing due to the predominance of annual grassland, and also because of the scattered nature of the public lands which lend themselves to the herding of flocks of sheep, thus avoiding the need for fencing. The development of oil and gas is also prevalent in the Valley Management Area. Depending on the extent of such development, can become a hindrance or even preclude livestock grazing in an area entirely.

This management area contains the majority of the allotments that are located within the range of the five Federally listed threatened and

endangered plants found in the Caliente Resource Area. The majority of the allotments within habitat for Federally listed threatened and endangered animals are also in the management area.

Livestock Grazing - South Sierra Management Area

Vegetation in this management area is quite diverse and lends itself to a variety of grazing management applications. The main limitations to livestock grazing throughout the management area continue to be steep slopes or rough terrain, water availability, and forage availability.

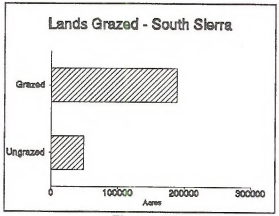


Figure 6

There are currently fifty-one grazing allotments which fall entirely or partially in the South Sierra Management Area. Figure 6 shows the proportion of acres within the management area which are grazed versus those not grazed. Twenty-three of these allotments are in an "I" category, encompassing approximately 142,331 acres and providing 9,074 AUMs of forage. Eleven "M" category allotments cover 20,007 acres for 2,014 AUMs, and seventeen "C" category allotments cover 26,258 acres for 2,588 AUMs. Of the "I" category allotments, Short Canyon, Cholla Canyon, and Wagy Flat have existing Allotment Management Plans (AMPs) in effect, and the North Fork allotment has a draft AMP in progress. A comprehensive Coordinated Resource Management Plan (CRMP) has been developed which outlines management objectives in the Walker Pass West, Canebrake, Long Valley, Kennedy Lamont and Scobie Meadow "I" category allotments as well as the Sacatar Meadow and Spanish Needle Creek "C" category allotments. This leaves 14 "I" category allotments yet to have an AMP developed. The Kelso Peak "M" category allotment partially falls outside of the Caliente Resource Area (RA) boundary, but is administered by the Caliente RA by virtue of a MOU with the California Desert District.

The South Sierra Management Area is partially comprised of California (Mediterranean) annual range type. "I" category allotments with this annual range type are managed for residual mulch levels. Currently designated minimum mulch levels for 0 to 25% slopes are:

North Fork	00017	600 lbs/ac.
Freedom Hill	00074	300 lbs/ac.
Short Canyon	00082	300 lbs/ac.
Cholla Canyon	00086	300 lbs/ac.
Wagy Flat	00090	400 lbs/ac.
Canebrake	00123	300 lbs/ac.

Generally, the higher elevations of this management area are used as summer and/or fall pastures, while the lower elevations are used mainly during the spring or early summer to take advantage of the high annual grass component. Many allotments are used in conjunction and coordination with Forest Service grazing permits. Demand for new grazing allotments is greatest in this management area. Urban growth in this area is contributing to people/livestock conflicts.

Minerals

The BLM is responsible for the management of approximately 4,613,700 acres of mineral estate within the Caliente Resource Area. Mineral management programs include fluid minerals (oil & gas, geothermal), locatable (metals, gypsum and certain other minerals), solid leasable minerals (phosphate, salines), and saleable mineral materials (common varieties of sand and gravel, clay, rock etc.). All of these resources except oil and gas are described below; because of their importance

to the area, oil and gas are handled separately in a following section.

FEDERAL MINERAL ESTATE WITHIN THE BOUNDARIES OF THE CALIENTE RESOURCE AREA	
U. S. Forest Service	2,662,000
Bureau of Land Management	939,000
National Park Service	779,000
Tule River Indian Reservation	92,000
Department of Defense	76,300
Department of Energy	47,100
U. S. Fish and Wildlife Service	11,000
Army Corps of Engineers	7,300
TOTAL	4,613,700

Table 3

Much of the Federal mineral estate falls within areas whose surface is managed by other Federal agencies (Table 11); management responsibilities also include reserved mineral estate underlying private lands.

Although the Bureau of Land Management manages for multiple use of its lands, not all mineral estate is open for mineral development. Within the boundaries of the Caliente Resource Area, approximately 2,0177,000 acres of Federal lands not managed by the BLM are presently withdrawn from the location of mining claims (Table 12).

In 1984 Congress designated 1,855 acres of public land as wilderness in the vicinity of San Luis Obispo. These lands are closed to the location of mining claims. An additional 39,000 acres are recommended suitable by BLM for wilderness designation. The lands recommended as suitable for wilderness are open to location of mining claims, until Congress designates them as wilderness. Wilderness Study Areas not recommended suitable for designation by the BLM encompass 77,700 acres. These lands are also open to the location of mining claims. Regulations and policy regarding mining in both recommended and non-recommended

FEDERAL LANDS CLOSED TO MINERAL LOCATION WITHIN THE BOUNDARIES OF THE CALIENTE RESOURCE AREA	
National Parks	
Channel Islands - On Shore	250,000
Sequoia - Kings Canyon	529,000
U. S. Forest Service	
Sequoia - Wilderness	256,000
Other Withdrawals	15,000
Inyo - Wilderness	18,000
Los Padres - Wilderness	253,000
Recommended WSAs	254,000
Other Withdrawals	200,000
Army Corps of Engineers	7,300
Department of Energy	47,100
Military	76,300
U. S. Fish and Wildlife Service	11,000
Tule River Indian Reservation	92,000
Bureau of Land Management	
Wilderness	1,855
Recommended WSAs	39,000
Other Withdrawals	6,000
TOTAL	2,064,500
Percent of Federal mineral estate not open to location = 45%	

Table 4

Wilderness Study Areas severely restrict mineral development.

The existing land use plans recommended withdrawal of 4,200 acres from the mining law within Areas of Critical Environmental Concern (ACECs). As of this date none of these areas have been withdrawn. These proposals have been brought forward into this plan.

The California Rocks and Islands Wildlife Sanctuary ACEC was withdrawn from the mining laws and closed to all forms of mineral leasing and sale in April 1984. The Piute Cypress ACEC, with 760 acres, was withdrawn from mineral location February 1965. Within the proposed Keyesville ACEC 400 acres were withdrawn in the late 1960's along the Kern River. Recreational mining is permitted along the river within that withdrawal.

Coal

Coal has not been mined within the Caliente Resource Area, and there is no potential for economic deposits. Coal is not discussed further in this document.

Geothermal Resources

On lands managed by the Bureau, Kernville Hot Springs near Lake Isabella has high potential for the development of geothermal resources. This area of high potential extends south and west to Democrat Hot Springs within the boundary of lands managed by the U. S. Forest Service. A broad area of moderate potential surrounds Lake Isabella, extending from California Hot Springs on the northwest to Walker Basin on the southeast.

About 1,400 acres of Bureau managed land have high potential for geothermal resources, while about 100,000 acres have moderate potential. Sespe Hot Springs near Ojai in the Coast Management Area is classified as a Known Geothermal Resource Area (KGRA). An area with several hot springs extending west from Sespe Hot Springs for over thirty miles has moderate potential. Within the Sierra Nevada, an area extending from Springville on the west nearly to Coso Hot Springs on the east also has moderate potential. Lands with low potential are found in most of the southern Sierra Nevada and Coast Ranges. An area that is not considered to have any potential lies in the Sierra Nevada in Tulare County near Blue Ridge. The San Joaquin Valley and a portion of the west slope of the Sierra Nevada within Tulare county is not considered to have potential.

Solid Mineral Resources

Historically within the Caliente Resource Area a wide range of metallic and nonmetallic minerals have been produced. The metallic minerals include gold, silver, copper, lead, zinc, tungsten, mercury, chromite, manganese, antimony, and uranium. The nonmetallic minerals include diatomaceous shale, diatomite, limestone, sand and gravel, rock, gypsum, clay, pumice, fuller's earth, barite, clay, roofing granules, magnesite, feldspar and decorative/building stone. Also, there are known occurrences of iron, bismuth, arsenic, molybdenum, nickel, thorium, tin, perlite, turquoise, asbestos, garnet, beryl and zeolite.

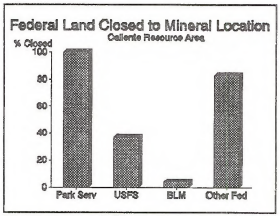


Figure 7

Active nonmetallic mines in the resource area produce sand and gravel, limestone, diatomite, diatomaceous shale, clay, rock and gypsum. Uncommon varieties of these minerals are locatable under the mining law of 1872. Common varieties, as defined by Public Law 167 of July 23, 1955, may be sold as mineral materials. The only nonmetallic minerals produced from BLM land are diatomaceous shale, sand and gravel, and gypsum.

Sand and Gravel, Rock, Clay: The sand and gravel which is extracted from BLM lands in the Caliente Resource Area is all common variety. Primarily east of Lake Isabella, extensive Pleistocene sand deposits have potential as a source of sand for fill. There are three ongoing operations in the Lake Isabella area: the Bureau operates a community pit for sand; a private company purchases sand and gravel from mineral estate owned by the United States; and Kern County extracts sand and gravel for fill in association with the Cyrus Canyon Dump. Recent alluvium within active river beds is mined in many places on private lands for sand and gravel.

FEDERAL LANDS CLOSED TO MINERAL LEASING AND SALE WITHIN THE BOUNDARIES OF THE CALIENTE RESOURCE AREA	
National Parks	
Channel Islands - On Shore	250,000
Sequoia - Kings Canyon	529,000
U. S. Forest Service	
Sequoia - Wilderness	256,000
Other Closures	15,000
Inyo - Wilderness	18,000
Los Padres - Wilderness	253,000
Recommended WSAs	254,000
Other Closures	200,000
Bureau of Land Management	
Wilderness	1,730
Recommended WSAs	26,600
TOTAL	1,812,000
Percent of Federal mineral estate not open to mineral leasing or sale = 40%	

Table 5

On the east side of the San Joaquin Valley east and north of Bakersfield, deposits of sand, gravel, and fuller's earth have been mined. Layers of volcanic ash within the Round Mountain Formation have been the source of fuller's earth. On the west side of the San Joaquin Valley, the Tulare Formation has been the source of sand and gravel, clay and fuller's earth.

In the Sand Canyon area east of Tehachapi colorful volcanic rock has been mined in the past for roofing granules. Also clay deposits nearby on private land yielded high grade fuller's earth. In this area extensive volcanic ash beds have altered to clay, and a recent report by the California Division of Mines and Geology confirmed that the clay contains zeolites. These rocks have also yielded chalcedony and agate, and have been popular with rock-hounds for decades. Within this vicinity sand deposits, similar to the Pleistocene deposits found in Lake Isabella, are presently a source of sand. A small pit adjacent to Bureau land operated briefly, producing sand for fill within the last 5 years. There is limited potential from Bureau land. All of these commodities occur on Bureau managed mineral estate.

On Bureau land west of Atascadero, basalt is mined to surface local roads. There are no other rock quarries in this area, although Bureau land adjoins an active quarry on private land.

Gypsum: Gypsite deposits formed in soil overlying Tertiary sedimentary rocks containing gypsum and widely occurs on the margins of the San Joaquin Valley. Gypsum in the form of gypsite has been extracted from public lands in large quantities for use as an agricultural soil amendment. Gypsum is an important soil amendment for San Joaquin Valley agriculture, since it helps displace salt in irrigated crop land. There are many deposits on public land which were mined and are now exhausted, although some mining is still occurring. In the 1950s and 1960s large acreages were mined for gypsum; most of these areas were not reclaimed. Present or future actions will be reclaimed in conformance with State and Federal laws and regulations.

Diatomite/ Diatomaceous (Siliceous) Shale: Near Lompoc large quantities of diatomite is mined from private land. Pure diatomite such as that at Lompoc does not occur to any sizeable extent on public lands. Diatomaceous (or more properly "siliceous") shale does occur. This shale consists of mildly metamorphosed sediments which consist of varying proportions of diatoms and clay. During metamorphism, these diatoms were converted to various forms of silica. Tertiary siliceous shale of the Monterey Formation has been mined since the 1940s, primarily for use as oil and pet waste absorbents. Since about 1970 this product has been mined on BLM land. Presently there are two major producers: Excel Mineral Company, south of Taft, and Golden Cat, southwest of Maricopa. The material is widespread on public lands within the Caliente Resource Area and is the source of the majority of cat litter purchased in California.

Limestone: Due to the close location of Los

METALLIC MINERALS - FORMERLY PRODUCTIVE AREAS		
AREA/ DISTRICT	COMMODITIES	PRODUCTION*
Havilah/ Clear Creek	Gold	$725,000
Kernville/ Cove	Gold	$8,000,000
Kings County	Mercury	$180,000
Loraine	Gold/ Silver	$1,800,000
Loraine	Antimony, Tungsten, Zinc, Lead, Copper	$150,000
Long Tom Mine	Gold	$900,000
San Luis Obispo County	Mercury	$3,900,000
White River	Gold	$750,000
White River	Copper	$120,000
TOTAL		$16,525,000
* Dollar value at time of production		

Table 6

Angeles, limestone is produced for cement at a number of mines in or just outside of the South Sierra Management Area. None of the mines are on public lands, although large deposits of limestone do occur on mineral estate administered by BLM.

Metallic Minerals: Gold was discovered on the Kern River in Keyesville shortly after the 1849 California Gold Rush. Prior to World War II nearly $17 million worth gold and other metals was produced from public lands within the Caliente Resource Area or adjoining private lands. This production is summarized in Table 14. Additional production is possible in the future. Exploration is continuing, with a minable ore body having been discovered in the Loraine area in the last ten years.

Within the Lake Isabella area most gold occurs in fissure filling quartz veins. Some tungsten-bearing skarns are also auriferous. In the Loraine area gold, silver and antimony mineralization are associated with rhyolite dikes and other rhyolitic hypabyssal rocks. The mercury mines of San Luis Obispo and Kings counties have potential for gold, although none has been reported.

Along the foothills of the Sierras north of Bakersfield, there are a number of scattered gold mines, which historically have been very productive. The Green Mountain mine located in this area is the largest copper producer within the Caliente Resource Area, having yielded about 600,000 pounds of copper. Tungsten mines literally pepper the southern Sierra Nevada. Most of the tungsten "mines" in this resource area were prospects or minor producers. Serpentinite occurs in the western-most corner of Kings County in a band along the foothills on the western edge of the Sierra Nevada, from below Porterville to the north, and throughout the Coast Ranges. Mercury mines are associated with serpentinite in portions of San Luis Obispo County, and western-most Kings County. The mercury deposits in the south Sierra are associated with Tertiary volcanic rocks. Also associated with serpentinite are magnesite, copper and chromite occurrences, and a few small asbestos occurrences. Near Porterville

considerable magnesite was produced in the early 1900s. Chromite occurs within serpentinite primarily in the vicinity of San Luis Obispo. Most of these deposits were small and worked during short times of high prices.

Tertiary sedimentary rocks in the Temblor Range and north of Bakersfield were intensely explored during the late 1970s and early 1980s for uranium. Amounts of uranium significantly above average crustal abundance can be found especially in the Temblor Range. Due to the very low grades and prices, the potential for development is negligible.

Solid Leasable Minerals

Phosphate: Phosphate is an essential plant nutrient. About 70 percent of the world's production of phosphate is produced for fertilizer. In California most of the phosphate occurs in Miocene age marine sedimentary rocks of the southern Coast Ranges. In the Caliente Resource Area, the Bureau of Land Management has classified several areas as prospectively valuable for phosphates within the southern Coast Ranges. These areas are as follows: in Kern County - on the east side of the Temblor Range from just south of McKittrick Summit north to State highway 46; in San Luis Obispo County - from just east of Creston to just south of State Highway 58 at San Juan Creek, west of U. S. Highway 101 from Atascadero north to Adelaida, and at the southern end of Morales Canyon northwest of New Cuyama; in Santa Barbara County - south of New Cuyama, near the junction of the Santa Maria River and Foxen Canyon, south and east of Lompoc to the ocean, and at Capitan; and in Ventura County - straddling State Highway 33 on the south side of Pine Mountain. A few of these areas have small tracts of Bureau managed lands within them, although two areas have significant acreages of Bureau managed land: Morales Canyon, and the east side of the Temblor Range.

Phosphate occurrences have been prospected south of New Cuyama, east of Creston, at Pine Mountain and near Chico-Martinez Creek on the east side of the Temblor Range. Over the past 20 years there have been about a dozen phosphate prospecting permits or leases within the Caliente Resource Area, most of which have been on lands administered by the U. S. Forest Service. All of these permits are either dormant or expired.

Saline minerals: Within the Caliente Resource Area, about 34,000 acres of BLM administered mineral estate is classified as prospectively valuable for solid leasable minerals (phosphate/ sodium-potassium). Saline minerals have been produced from Soda Lake in the Carrizo Plain, Lockwood Valley near Mount Pinos, and Proctor Dry Lake near Tehachapi. Soda Lake was mined from the 1880s until about the 1920s for salt and sodium sulfate. Borate minerals were mined within the boundary of the Los Padres National Forest in the Lockwood Valley early in the 1900s, and salt was produced from Proctor Lake. The Bureau of Land Management has classified all three areas as prospectively valuable for sodium and potassium.

Oil & Gas

The BLM manages 939,000 acres of Federal mineral estate underlying public and private lands within the Caliente Resource Area. The Bureau handles all facets of environmental review and leasing on these lands. The BLM is also responsible for administering Federal mineral estate underlying lands managed by other agencies, such as the U.S. Forest Service (USFS) and the National Park Service (NPS). Since the BLM only administers subsurface or down hole activities occurring on oil and gas leases on these lands, the decision to lease these lands is made by the surface management agency. Accordingly some lands may never be leased.

Exploration and development of oil and gas have been important to the economy of California and the nation since the first production from wells, initially drilled with cable tools beginning in the late 1800s, and rotary rigs beginning in the early 20th century. State and county employment figures indicate that about 6.5 % (13,000 out of 199,000 jobs) of

OIL AND GAS PRODUCTION AND RESERVES WITHIN THE CALIENTE RESOURCE AREA (EXCLUDING DOE LANDS)					
COUNTY	OIL RESERVES: FIELDS WITH FEDERAL LAND (BBL)	ALL OIL PRODUCTION / FEDERAL OIL PRODUCTION	GAS RESERVES: FIELDS WITH FEDERAL LAND (MCF)	ALL GAS PRODUCTION / FEDERAL GAS PRODUCTION	ALL PRODUCTIVE WELLS / PRODUCTIVE FEDERAL WELLS
KERN	1,478,650,000	229,544,511 19,157,868	665,619,000	124,860,505 1,277,356	34,991 4,273
KINGS	1,932,000	177,954 17,608	19,017,000	1,276,806 8,100	138 83
SAN LUIS OBISPO	987,000	681,147 16,152	2,301,000	4,701,115 1,920	311 56
TULARE	0	56,139 0	0	26,356 0	55 0
SANTA BARBARA	35,786,000	4,928,702 455,880	24,512,000	5,053,548 1,034,388	1,055 101
VENTURA	48,654,000	13,506,746 795,300	103,630,000	14,325,594 1,743,636	2,306 275

Table 7

total employment in Kern County and about 3% (18,000 out of 684,000 jobs) Resource Area wide is directly related to oil and gas.(California Labor Market Information Division of the Employment Development Department figures for 1990, and Kern County Employment Development Department). This low estimate does not count related employment in construction, mechanical repair and other fields ancillary to the exploration and development of oil and gas resources.

Generalized potential (low, moderate, and high) for oil and gas occurring in the Caliente Resource Area is discussed in the reasonable foreseeable development (RFD) scenario. It should be noted that the potential is much less for the development of economically viable reserves. The degree of potential is a consequence of the presence and interactions between one or more of the following: source rocks, maturity of source rocks, type of kerogen; reservoir rocks, proximity to source rocks, integrity of reservoir rocks; traps, time of formation versus time of hydrocarbon migration, and type of traps (fold, fault pinch-out, channel, etc). Source rocks are those which are highly organic and are able to expel hydrocarbons because they have been through thermal maturation; they have certain types of kerogens which led to the expulsion of oil (Type I), oil and gas (Type II), or primarily methane natural gas (Type III).

The kerogens are related to the environment in which the rocks collected. Deep or cold oceans lead to primarily Type I oil prone kerogens as a result of immense collections of bacterial, micro-floral and micro-faunal debris. The Monterey and Kreyenhagen formations are

source rocks of this type. Continental shelves with extensive deltas lead to deposition of primarily Type II kerogens, which are a mixture of oceanic organic debris and land plant debris. Some of the source rocks found outside of the resource area in the Sacramento Valley are of this type. Lakes or delta plains that include algae and a high amount of land plant leaves or other organic debris which is commonly humic or paraffin rich, collect Type III kerogens, as in the Trico gas field.

Reservoir rocks are often sandstones which have adequate porosity and permeability to allow oil to migrate in. Examples include the Temblor and Tulare formations. In California, particularly in coastal basins, the silica rich Monterey formation acts as a important reservoir. Here permeability and porosity is related to development of fractures.

The silica of the Monterey is due to the presence of billions of tiny plants (diatoms) and amoeba-like animals (radiolarians). As lithification took place the shells were crushed. Thermal maturity then changed organic debris to movable hydrocarbons. The hydrocarbons could then migrate.

Changes in the silica continued, forming a type of opal and then quartz, each stage resulting in a more dense form of silica. Subsequent volume changes result in the development of extensive fractures, which acted as reservoirs and more efficient oil migration pathways. The Monterey formation is widespread along the modern coast and Miocene paleo-coastline of California. It occurs from Santa Maria to Ventura and eastward to Cuyama and into the San Joaquin Valley. When it is found inland it contains important sandstone interbeds which act as contained reservoirs. Fracturing does not take place to the same degree inland as in the coastal basins, because of the increased contamination of the silica facies (or portion) of the Monterey with clastic debris.

Most of the producing oil and gas fields trend northwest, with the overall dominate structural trend of California. The exception is fields of the Ventura Basin which trend east-west, congruent with the local structural trend of the Transverse Range Province. The highest potential for future geophysical seismic exploration and new field discoveries is in the highly prolific San Joaquin Valley.

There are 32 giant oil fields with ultimate recoverable reserves of at least 100 million barrels oil (MMBOE) each within the boundaries of the Caliente Resource Area. Seven of these fields account for 57% of the total cumulative production through 1989. Six of the seven fields are located in the San Joaquin Basin, and one in the Ventura Basin.

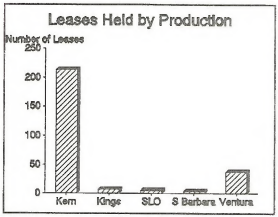


Figure 8

The Resource Area includes Kern County, which is located in the southern San Joaquin Valley. Kern County contains over 90% of the Federal oil production in the Resource Area, over a third of the Federal gas production, and a majority of the Federal mineral estate in the Caliente Resource Area. Moreover, these oil and gas fields are in a region which has great potential for conflicts with threatened and endangered species.

An average of 200 Applications for Permit to Drill (APDs) are received annually in the BLM's Caliente office. Most are for drilling in the San Joaquin Valley/Basin. The numbers of APDs approved by area over a 5 year period ending 1990 are shown within the RFD. There are approximately 100 Sundry Notices of Surface Disturbance filed per year, and about 5

Notices of Intent to shoot seismic surveys each year in the Caliente Resource Area. Each year nearly 100 wells are plugged and abandoned, and about 20 sumps are cleaned out.

In the decade of the 1980s, about 1,500 total prospect wells were drilled within the Resource Area. Of these, only 4% were on Federal mineral estate. Most of these wells were drilled in the San Joaquin Basin, primarily Kern County. Out of the 43 wells representing the 4% drilled on Federal mineral estate, Kern County had 31. Since 1980, Kern County has had the largest share (67%) of all prospect drilling in the Caliente Resource Area. The two other counties in the San Joaquin Basin, Kings and Tulare, had 5% and 3% respectively of all prospect drilling. In the outboard (west of the San Andreas Fault) basins, the remaining one quarter of prospect drilling was distributed amongst the following counties: Ventura County (Ventura Basin) 10%, Santa Barbara County (Santa Maria Basin) 10%, and San Luis Obispo County (Cuyama Basin) 5%. There were 19 exploratory wells in the State in 1990; half were in the Caliente Resource Area.

Recently, the implementation of a stricter Idle Well policy by the State of California resulted in operators being forced to either plug and abandon wells, or to work them over. As a result in 1990, California had the highest rate for use of service rigs in the United States. California well completions increased 11% in 1990: a total of 1415 oil producers (more than 90% of these were from the Caliente Resource Area); 83 gas producers; and 117 dry holes. Success for total completions in the state: workover, production drilling and exploration drilling, was 93% (97% if one counts workovers and production wells only).

Oil & gas royalties for the various areas in 1991 were $87,778 for San Luis Obispo County (Cuyama Basin,) $268,806 for Santa Barbara County (portions of Ventura and all of Santa Maria Basins), $2,387,125 for Ventura County (Ventura Basin - this figure includes offshore production as well) and Kern County $32,957,393 (for the prolific Southern San Joaquin basin). The Sierra Nevadas are neither productive nor prospective for oil and gas.

It is normal, as fields become mature to supermature, that additional measures to recover oil left in place are taken. This results in increased numbers of enhanced oil recovery (EOR) projects, which include thermal (steam, and hot water) recovery techniques. In order to develop the thermal projects cogeneration facilities are built to produce steam or hot water.

Traditional steam generation facilities tend to produce a large number of pollutants when fired by oil or coal. The Clean Air Act and local regulations as prescribed by air quality control boards require a lessening of such pollutants. This has caused a shift to natural gas. Within fields where thermal enhanced oil recovery methods are used, most cogeneration plants are now fueled by natural gas. Other cogeneration projects will be converted to natural gas as the Mojave Pipeline comes on line, thereby reducing pollutants.

Because of the limitations of the Clean Air Act, on the refining of high sulfur heavy oils, another potential trend might involve the exportation of San Joaquin Valley high sulfur heavy oil to other countries. In 1991 the Commerce Department recommended a 3 year pilot program of heavy oil exports. Although these forces are beyond the scope of this plan, they do affect production.

The deeper it is necessary to drill for oil and gas, the higher are the costs to find and develop the resource. Heavy oil is found in shallow reservoirs, some less than 200 feet deep, but profit margins are low. Consequently, operators may trim production in heavy oil fields and reservoirs because of the low profit margins of heavy oil production. Some major oil and gas corporations are experimenting with light oil steam floods, which are found in deeper reservoirs, but could result in better profit margins. In view of this, future trends in wildcat drilling will also be toward deeper, more costly, high gravity oil plays. If natural gas prices rise, natural gas prospects will also be more aggressively

drilled, this too is found in deeper reservoirs. Due to these economic and technological concerns, shifts to light oil steam floods, and perhaps natural gas production and use will spontaneously occur, unless major changes take place. More pumps are required for heavy oil reservoirs. If the trend is away from heavy oil, then future well spacings will be greater, with relatively fewer emissions. These are forces and trends which operate outside the purview of this plan.

Oil and gas operations result in yielding a great deal of water from producing formations. This water is usually contaminated by hydrocarbons, and/or other production fluids. The Kern County Water Agency and the County Health Department also are involved in regulation of water disposal wells.

Additional information on the affected environment can be found in Chapter 4 and within the Reasonable Foreseeable Development Scenario for Oil and Gas, which is summarized in Chapter 4 and found in its entirety in Appendix G-2.

Oil & Gas - Coast Management Area

There are three major basins in the Coast Management Area. They are considered outboard basins, meaning they are found west of the San Andreas fault plate boundary. The three major basins are found in three counties and each lies within a different geological regime: Cuyama basin is within the Salinan block in San Luis Obispo County; Santa Maria basin is in the Nacimiento block in northern Santa Barbara County; and Ventura basin is within the Transverse Ranges in Ventura County and southern Santa Barbara County. The basins are grouped geographically in the discussion following, but their geological histories vary.

Cuyama & Santa Maria Basins

Both of these basins are geographically located within the Central California Coast Range Province. This geographic province lies north of the Transverse Ranges and west of the San Andreas Fault. The Santa Maria Basin is found in northern Santa Barbara County, the Cuyama basin is found in southeastern San Luis Obispo County. Geologically however, they lie within two very different terrains or blocks, the Cuyama basin in the Salinian Block, and the Santa Maria Basin in the Sur-Nacimiento Terrain. These blocks are separated by a major boundary fault: the Sur-Nacimiento. Their geologic histories are very different, and their source and producing rocks vary also.

The Santa Maria basin lies north of the Transverse Range Province. The oldest or basement rocks are Mesozoic to Early Tertiary Franciscan-type melange and ophiolites. Ophiolites are slices of the ocean floor which became adhered to the continental crust during the process of the subduction of the sea floor, and melange consists of partially fused and mingled remains of sea floor sediment and other debris which accumulate in subduction zones. Within the Santa Maria basin the Oligocene and older Tertiary rocks are often not present or when found, only contain minor oil reservoirs.

The oldest sediments lying on top of the basement rocks are of Oligocene to Early Miocene age. These Oligo-Miocene rocks are termed the Lospe formation. Their type area is near the well known geographic feature called Pt. Sal. The Lospe formation is represented by sandstones and conglomerates. The environments of deposition of these sediments range from marine to non-marine. They indicate a major transgression of the ocean over the land.

Locally, the base of the Oligocene-Miocene sequence is represented by the sandstone and conglomerates of the Lospe formation. Pt. Sal is near the Lospe's type area. The formation ranges from marine to non-marine. The early Miocene Pt. Sal formation overlies the Lospe and consists of deep-marine turbidite sandstones and mudstones. During the early Miocene as the Pt Sal formation was deposited, the basin had subsided to great depths, but still received input from the weathering of lands nearby.

The Monterey formation lies above the Pt Sal formation. The Monterey fractured cherts and diatomites are the primary oil and gas source/reservoir, although the clastic Sisquoc formation of Miocene-Pliocene age also is an important reservoir. The Monterey formation contains very little input from land debris, such as sandstone. It also indicates climatic change. The lower portion of the Monterey contains calcareous warm water micro-fossils; the mid to upper portions contain siliceous cold water type micro-fossils. Both portions are organic rich, and as noted above contain Type I kerogens, yielding primarily oil. Thus the Monterey is an important source rock, and also acts as a fractured reservoir rock. In the Santa Maria basin, as in the Ventura basin, the Mio-Pliocene sand-rich Sisquoc formation overlies the Monterey. The Sisquoc is a productive reservoir in both basins; oil is the primary hydrocarbon.

The remaining formations of the Santa Maria basin are greatly different from those of the other basins. This is an indication of the isolation of this basin from the others. Gradual filling of the basin by clastic debris led to the shallowing of marine waters. Off-shore basins and trends are projected to be more prolific than onshore basins; however they are beyond the scope of this plan. The Santa Maria Basin produced 3 million barrels of oil in 1990 from nearly 400 wells. Total cumulative oil production is nearly three quarters of a billion barrels.

San Luis Obispo County has a single important oil and gas basin. Called the Cuyama Basin, it is found at the southern terminus of the Salinan block. Its history is tied to movements along the San Andreas Fault, which lies at its eastern edge. The Transverse Ranges lie south and west of the Caliente Range. The Cuyama basin forms a broad structural depression between the ranges. Oligocene and younger formations act as reservoir rocks. Here again the Miocene Monterey acts as both source and reservoir. The Monterey here tends to be more clastic, and has less of the pure silica or cherty facies found westward. It is the least prolific of all of the Coast Management Area basins, and produced less than half a million barrels in 1990, with 219 million barrels total cumulative production.

Ventura Basin. The largest and most prolific coastal basin is Ventura Basin in Ventura and southern Santa Barbara Counties. This basin trends east-west and is part of the western Transverse Range Geological Province of California. It lies south of the Salinian block and Sur-Nacimiento terrains.

The Northern border includes the Santa Ynez Mountains, which are part of the Western Transverse Ranges. The southern boundary includes the Santa Monica Mountains, which are also a part of the Western Transverse Ranges. The Ventura basin forms a broad depression between the two. East-west trending left lateral strike-slip faults are a feature of the Western Transverse Ranges, and occur both north and south of the Ventura Basin. Faults in the basin today are typically reverse faults, typical of compressive tectonics. Because of plate tectonics, extreme compression has been especially dominant in portions of southern California in the last 6 million years. This means that pre-existing left lateral faults in the basin are most likely folded left-lateral strike-slip faults. They now appear to be reverse faults.

The Santa Barbara-Ventura basin of southern California has been of interest because oil and gas have been produced from nearly all the sedimentary units from the Cretaceous to Pleistocene ages. Because of lateral changes in thickness and lithofacies of the sedimentary strata in this basin, any stratigraphic columns are generalized.

Franciscan basement is buried beneath extremely thick Cretaceous clastic sediments. It is estimated that the Ventura Basin contains more than 33,000 feet (10,000 meters) of sediments, ranging from Cretaceous to Pliocene. The western, larger portion of the Ventura Basin continues to be submerged under the Santa Barbara channel; the eastern land portion occupies the Santa Clara River

Valley. The deepest portion of the sedimentary basin is found extending from under the northern part of the channel near Ventura, thence eastward toward Fillmore. The basin ranges inland to Newhall, and where there are many small fields, which produce chiefly from Miocene and younger rocks, to Santa Barbara/Ventura where giant fields are found. The main reservoirs are the thick marine sands of the Plio-Pleistocene Pico formation. Other important reservoirs are the marine Sisquoc, Monterey, Vaqueros, Alegria and non-marine Oligocene Sespe Formations, which range in age from Oligocene to mid-Pliocene.

Rocks older than Miocene are clastic and have gone through deep burial, and extensive diagenesis. This has resulted in a loss of critical reservoir properties such as porosity and permeability. Western onshore Ventura basin produces nearly 99 % of its oil and gas from post-Eocene rock sequences. The Oligocene Sespe formation produces about 12%; another 12% is from the lower to middle Miocene section; and 75% is from Monterey and younger reservoirs.

In the Ventura area there are eight giant oil fields (with reserves of more than 100 million barrels each) producing from Miocene and younger reservoirs. The Pico and Repetto formations overlie the Monterey. They consist of thicknesses as great as 19,000 feet (6000 meters). The lower 15,000 feet (4,000 meters) of the Pliocene sediments are marine interbedded sandstones and micaceous mudstones of the Pico and Mudpit Formations. The uppermost 4,000 feet (1,300 meters) of Pliocene sediments range from terrestrial gravels to marine sand and gravel. North and south of the central Ventura Basin this sequence commonly thins rapidly against up-tilted formations of the middle Tertiary sequence.

Production in this basin yielded total oil and gas production of 25.5 million barrels from 2000 wells; 24 billion cubic feet of gas (cfg) was also produced in 1990. Cumulative production totals of all the fields in the Ventura basin equaled 3.7 billion barrels of oil, and 5 trillion cfg. Federal lands yielded nearly 10% of the 1990 oil totals, and about 20% of 1990 gas production. Recently, new field extensions have been discovered in the Ventura area.

Valley Management Area

This is one of the oldest oil districts in the United States, and has been extensively developed in the anticlinal trends along the east and west sides of the Valley since the 1870's. There are several giant fields (more than 100 million barrels of oil each) in the Valley.

The study area is within the mid to southern San Joaquin portion of the great Central Valley geomorphic province. The San Joaquin Valley is the southern two-thirds of California's great Central Valley, and is separated from the northern portion of the Great Central Valley (or Sacramento Valley) by the subsurface Stockton Arch. The Valley floor lies about 200 to 400 feet above sea-level in the study area.

The San Joaquin basin is the structural geological term for the geographical feature. The boundaries of the province are as follows: the Sierran block lies to the east and south, the San Andreas Fault and resultant Coast Ranges (such as the Temblor Range) lie to the west. The structural basin is filled in with the products of weathering of primarily granitic Sierras, and detritus from the mixed granitic, metamorphic, and sedimentary Coast Ranges.

The San Joaquin Basin has a complex geologic history. The pertinent facts of its history involve the development of source and reservoir rocks. Reservoirs found in the San Joaquin Valley are fractured siliceous, highly organic shales of the Monterey Formation and clastic rock reservoirs, usually sandstones. Many of the clastic reservoirs are older than the Miocene Monterey Formation. Clastic oil reservoirs are found at about 12,000 feet or shallower, due to compression and digenesis which destroy reservoir quality below about 12,000 feet; however, some dry gas has been found deeper.

The San Joaquin Basin began as a fore-arc basin collecting sediments from the ancestral Sierran Volcanoes to the east. The earliest rocks in this portion of the San Joaquin Basin (referred to below as Basin) are represented by Cretaceous sandstones and shaley turbidites derived from the ancestral Sierras found in the cores of peaks of the Temblor Range; as the terminal Cretaceous climatic deterioration occurred (due to global climatic cooling), upwelling began along the western continental margins coast line. This resulted in the deposition of siliceous highly organic shales of the Moreno formation, which is the only known source rock in the Mesozoic section of the Basin (it is not known to source any oil fields south of Coalinga, however). The early Cenozoic enjoyed extremely high temperatures with tropical laterites found as far north as Sacramento. This episode of tropical conditions is represented by a thick series of arkosic sandstones. These sandstones demonstrate sources from both eastern Sierras, and western Coast Ranges, such as the Eocene Point of Rocks formation, whose type section is in the Chico Martinez area. This is an important fact because it explains why the first sediments sourced from the west occurred in the Eocene and continued up to recent times. The Salinian block first became emplaced along the western margin of the North American continent in the Eocene. The Eocene-Oligocene boundary saw a climatic deterioration which again led to upwelling and the deposition of siliceous, highly organic shales of the Kreyenhagen formation. The Kreyenhagen formation, found in the mid to north San Joaquin Valley, thins and becomes more clastic to the south. It is the source of much of the high gravity (>30+ degrees API) oil which is often found in Oligocene and older reservoirs. From the Oligocene to the early or mid-Miocene warming took place and is represented by clastic deposition of rocks such as the Temblor formation. The Temblor formation's type section is also in the Chico Martinez area. During the mid-Miocene, the planet's climate again became colder, and produced siliceous, highly organic shales. These are represented by the Monterey formation, which as noted above acts as both a source and reservoir rock. Sedimentation of the basin typified the remainder of the Cenozoic. There is as much as 20,000 feet of Miocene and younger sediments in the southern Valley. There is also unusually low heat flow, so that even though deeply buried, the Monterey is in areas marginally through the oil window (the oil producing temperature/pressure range for a type of kerogen) and is the source of low API "heavy oils". Some of the heavy oil however is the result of flushing by meteoric waters and biodegradation, resulting in the loss of volatiles. These "heavy oils" are found in some of the youngest reservoirs of the basin such as the Plio-Pleistocene Tulare on the west side and the Kern River sequences on the east side.

The management area contains over 75 oil and gas fields. There are several giant oil fields (over 100 million barrels of oil each) such as the Midway Sunset Field (1.9 billion barrels cumulative produced as of 1990), and the Kern River Field (1.36 billion barrels cumulative produced as of 1990). There are many zones of production because of the rapid lateral facies changes of the primarily turbidite and fan delta type reservoirs. Phase changes in the siliceous reservoirs of the Monterey formation cause fracturing of the siliceous rocks into reservoirs. Today, the southern to mid-San Joaquin Valley has the largest oil fields both in terms of current production and potential reserves in California. Total oil production in the Valley was 229.7 million barrels in 1990 and 125 billion cubic feet of gas (cfg). Total cumulative production was 8.6 billion barrels of oil and 6.4 trillion cfg. The Valley accounted for 90% of California's development completions in 1990. Examples include: Midway Sunset - 410 completions, South/Belridge - 409 and Kern River - 157. The high number of completions are in part due to the increasing reliance on enhanced oil recovery in the Valley. In general large oil companies in California are reducing exploration budgets and non-performing or marginal properties are being sold or exchanged so that core producing properties can be more intensively developed. Plugging

and abandoning of wells may result in the reclamation of land. The San Joaquin Valley is expected to continue as the primary source of oil in California's oil and gas development, even during the current and projected sluggish rate of development. Additional information such as the number of existing wells and expected drilling, completion and abandonment rates is contained in the full reasonably foreseeable development scenario in Appendix G-2.

South Sierra Management Area

Except for about 1,000 acres due east of Bakersfield, which actually falls within the San Joaquin Valley, the South Sierra Management Area does not have potential for the accumulation of hydrocarbons. The acreage in the San Joaquin Valley consists of clastic reservoirs, and one reservoir of fractured schist. The Monterey is the apparent source rock.

In the Sierras sediments deposited prior to the intrusion of the granitic rocks of the Sierra Nevada batholith were subjected to high thermal heat flow which volatilized any hydrocarbons which were present. These sedimentary rocks now exist as deeply eroded metamorphic blocks, sometimes at the highest elevations in the range. The only post intrusion sedimentary rocks out of the San Joaquin Basin are in the Tehachapi Area. It is doubtful whether the sediments in this area contain adequate source rocks, a necessary component of hydrocarbon formation. If source rocks do exist, they have not been buried deeply enough, and have not gone through temperature regimes sufficient for generation of hydrocarbons.

Paleontological Resources

The objective of the paleontology program is to protect, inventory, and manage the paleontological resources found on public lands. A variety of paleontological resources exist in the Caliente Resource Area, including plant and animal fossils of marine and terrestrial origin, and invertebrate and vertebrate animal fossils. These paleontological resources have significant recreation, scientific, and educational value. The consideration of paleontological resources is an integral part of the BLM planning process. The BLM is presently developing and comprehensive set of Federal regulations for the management of paleontological resources on public lands. Major components of the paleontological program include maintaining information files, developing policy and guidance for avoidance and/or mitigation of potential impacts, developing volunteer and cooperative management agreements, monitoring to ensure that program objects are met, and promoting awareness among users of public lands of the importance of paleontological resources.

Paleontological Resources - Coast Management Area

The key paleontological resource identified on public land in the Coast Management Area is at Tierra Redonda Mountain. This locality includes the type locality of the Tierra Redonda Formation, and outcrops of the Vaqueros Formation. The Vaqueros is locally fossiliferous and contains marine vertebrate and invertebrates of Miocene Age. Historically the mountain also has served as a natural landmark in northern San Luis Obispo County. The area is regarded as important for both its scientific and recreational education values.

Paleontological Resources - Valley Management Area

Reef Ridge in the Diablo Range consists of Cretaceous and Tertiary fossiliferous sedimentary rocks. However, the Bureau does not manage any surface along Reef Ridge. The area is recognized as a classic locality of invertebrate fossils.

Directly to the east of Reef Ridge lie the Kettleman Hills which have yielded marine and non-marine vertebrate fossils as well as abundant invertebrate fossils. Woodring, Stewart and Richards (1940) recognized mastodon, beaver, peccary, horse, camel,

deer, sea lion, seal, porpoise, whale, turtle, shark and cormorant remains.

According to Dr. David P. Whistler (personal communication, 1973), the Tertiary sedimentary rocks of the Caliente Range include one of the most important fossil producing areas in the United States. Both marine and terrestrial fossils spanning nearly 20 million years are found in the same sequence of rocks, no such equal occurrence is known elsewhere. Four and possibly five "North American land mammal ages" are represented by fossils found in the Caliente Range (Wyss, 1992).

The Temblor Range constitutes a unique stratigraphic continuum of marine middle-tertiary strata in the California Coast Ranges. Tar pits, similar to the famous La Brea Tar Pits of southern California, are found near McKittrick and Maricopa. The Maricopa tar pits are considered one of the most important tar pits in California containing significant fossil remains (Dr. Lee A. Spencer, paleontologist, personal communication, 1990).

Paleontological resources in these areas described have significant research and educational values as evident by past and present studies in this region.

Paleontological Resources - South Sierra Management Area

The key paleontological resources on public land in the management area are the terrestrial vertebrate fossils found in the Sand Canyon/Cache Peak vicinity. These Miocene fossiliferous deposits consist of fauna and flora remains. This area is considered important as evident by the scientific research and public interest in the area.

Recreation

The public is attracted to the Caliente Resource Area's recreational resources for both their developed recreational facilities and programs, and also for dispersed opportunities on valuable open space lands. The principal developed facilities presently offered include 116 miles of BLM-managed Pacific Crest National Scenic Trail and its associated spur routes (extending from the Kern County boundary to the Domelands Wilderness Area, USFS), the Carrizo Plains Natural Area (a 180,000 acre showcase area), three campgrounds (Chimney Creek, Long Valley and Walker Pass), and the Rinconada Mine day use trailhead. In addition to these developed facilities, Caliente Resource Area manages ten wilderness study areas, two small wilderness areas, a segment of the river rafting program on the Lower Kern, and numerous toilet and trash disposal contracts to facilitate pressure from dispersed recreation uses. These dispersed uses span a variety of activities: hiking, backpacking, camping, horseback riding, off-highway vehicle riding, off road bicycling, nature study and photography (including birdwatching and wildflower viewing), picnicking, swimming, fishing, rafting, hunting, target shooting, trapping, pinyon nut collecting, gold panning, rockhounding, and limited snow play. The resource area is experiencing a growing number of requests for permission from organized groups to run events such as off-road bicycle races, motorcycle and jeep rides and races, dog trials, horseback riding trips, cultural and nature study tours, Scout Jamborees, and shooting and archery events. Furthermore, many new recreation initiatives stemming from "Recreation 2000" are being emphasized. These include designation and protection of wild and scenic rivers and scenic-backcountry byways. The entire resource area was inventoried for visual resource classification. Efforts are made to maintain or enhance these classes during resource development. In conjunction with each and every program, pressure is mounting for more comprehensive interpretive and visitor services: maps, brochures, signs, information and visitor centers and an environmental education outreach program. As the population of south-central California grows at a rate much greater than the rest of the country, Caliente's lands are becoming more valuable for recreation with the consequential ills of user conflicts and resource stress.

Existing law enforcement and public information positions are inadequate to handle all of the growing needs for public information, conflict resolution and resource stress.

Areas of greatest recreation value are managed as "Special Recreation Management Areas" (SRMAs). A description of Caliente's SRMAs follows within the management area descriptions.

Recreation - Coast Management Area

General Physical Characteristics/Key Location Factors. From a recreation viewpoint, BLM land in the Coast Management Area consists of steep terrain covered by thick, brushy vegetation. It is widely scattered and landlocked by private holdings with few or no legal or physical access routes.

A large percentage of Bureau land lies adjacent to or in close proximity to Los Padres National Forest and approximately 31 California state parks. The developed facilities in these parks and forest absorb most of the current recreational pressures from the coast. Public land near Lake Nacimiento and Santa Margarita receives the majority of Bureau-directed visitor use.

Present Use Patterns. This management area provides a diversity of dispersed recreational opportunities. Although the majority of the estimated 35,000 annual visitor hours of use occurs near Nacimiento and Santa Margarita Lakes, Bureau land, especially along the coast and adjacent to state parks, receives a flow of visitors attracted to the facilities offered by these agencies. For example, Pt. Sal received about 5,500 visitor-use hours per year from hikers, campers and OHV users. However the majority of visitors walk to the area along the bluffs from Pt. Sal State Beach.

In general, the Coast Management Area offers semi-primitive recreational opportunities. Moderate use activities are hunting, camping, hiking, horse-riding, target shooting and nature walking, while limited use is seen in fishing, trapping, mountain biking, OHV use, swimming, nature studies and picnicking. Isolated parcels and those adjoining Los Padres National Forest receive moderate hunting pressure with associated hiking, camping and equestrian use.

BLM developed recreation facilities in this management area are very limited. In conjunction with the USFS, a day-use trailhead facility was completed in 1990 on Bureau land at Rinconada Mine. This hiker/equestrian trailhead serves access routes into Los Padres National Forest.

Vehicle use in the entire Coast Management Area is classified as "limited" to roads and trails, except for Pt. Sal which is "closed" to OHV traffic. Both OHV use and mountain biking are growing interests amongst the increasing California population, especially near the coastal and university towns. This results in a real demand for more designated routes.

Bureau land consists of two VRM Class I management areas (see Appendix H). Both are designated wilderness (Santa Lucia, 1,735 acres, and Machesna Mt, 120 acres) and both are managed by the USFS because of their proximity to the larger forest wilderness areas. The Pt. Sal proposed ACEC is classified as Class II, while the remainder of the area is Class III and IV. Many of the class III and IV areas of public land are difficult to access.

Two small wilderness study areas (Machesna and Garcia, totalling 150 acres) both border Los Padres National Forest. Both have been recommended as unsuitable for designation.

The Salinas River is under study for Wild and Scenic River designation.

Recreation - Valley Management Area

General Physical Characteristics and Key Location Factors. The Valley Management Area offers semi-primitive, open space recreation within mostly flat to rolling lands near or surrounding the population centers of

Bakersfield and Visalia, the oil towns of Taft, Fellows, Maricopa, McKittrick and Cuyama, and Lemoore Naval Air Station. Users are attracted to the area's fauna and flora, geology, and cultural values. The area is most popular for recreation use in the spring and fall. The management area's proximity to Los Padres National Forest (on its west and southern borders) and Sequoia National Forest (to its east) subjects it to "overflow visitation" from these heavily-used Federal lands. Within the management area lie the Kern, Bittercreek, and Pixley National Wildlife Refuges.

Present Use Patterns. The approximate 110,000 visitor hours per year are concentrated in the following recreational activities: hunting and target shooting, nature and cultural studies (including birdwatching, wildlife observation, wildflower viewing, and "spiritual enlightenment"), day hiking, horse-riding, bicycling, OHV use, general sightseeing, and camping associated with these activities.

Very limited facilities have been constructed by BLM in the Valley Management Area, although present plans call for new and expanded developments. "On the ground" now is the Caliente Mountain Access Trail (2.5 miles), the Painted Rock Trail (.66 miles), the Painted Rock and Selby visitor use areas (parking areas), and temporary portable toilet contracts at KCL ranch and Painted Rock parking areas.

Growing public interest in the Carrizo Plains Natural Area has stimulated many organized tours run by colleges and schools, birding, conservation and archaeological societies and commercial nature operations. Permits have been issued to Santa Barbara Museum and Ventura Tours.

Five ACECs have been designated in the Valley Management Area. They are Goose Lake, Reef Ridge RNA, San Andreas Fault Scarp RNA, Soda Lake and Elkhorn Plain. Goose Lake is closed to OHVs. There are no OHV open areas and OHV use on the remainder of the management area is limited to designated roads and trails. However, these roads and trails are not signed and designated as such on the ground, a situation which presently applies throughout Caliente Resource Area.

There is one wilderness study area in this management area, the 18,083 acre Caliente WSA. It is located entirely within the Caliente National Cooperative Land and Wildlife Management Area (NCLWMA). Encompassing Caliente Mountain, the highest mountain in San Luis Obispo county (5104 feet), this area is popular for day hikes, hunting and wildflower-viewing.

The majority of the Valley Management Area is VRM Class IV. The exceptions are the regions of the Carrizo Plains Natural Area and Caliente WSA which are VRM Classes II and III.

Carrizo Plain Special Recreation Management Area. The Carrizo Plain SRMA is located 35 miles southwest of Bakersfield. The area could ultimately contain 180,000 acres, and is managed under cooperative agreement by BLM, The Nature Conservancy, and California Department of Fish and Game. Carrizo preserves the largest remaining representatives of the San Joaquin biogeographic province, substantially unaltered by man. Opportunities for interpretation of the natural and cultural resources, and for development of visitor facilities and programs is outstanding. Currently the area is visited by the public to view the wildlife (especially the migratory bird populations of Soda Lake), to experience the unique spring wildflower blooms, and to see Painted Rock archeological site. Associated uses in the foothills include hunting, hiking and horseback riding. Recreation facilities and programs identified for development at Carrizo include campgrounds, a visitor center, routes of travel that include a scenic backcountry byway (the Soda Lake/Elkhorn Road), interpretation, and an environmental education program to include interpretive sites and trails. Soda Lake is under study for Wild and Scenic River designation.

Recreation - South Sierra Management Area

General physical characteristics/Key location factors. The scenic South Sierra Management Area consists of geologic, vegetative, wildlife and historic values of interest to the recreationist. It is a land of mountains, rolling hills, grassland, meadows, white-water rivers and streams. These features support pinyon, digger and other species of pine, giant Sequoia trees, chaparral, Joshua tree woodland and important game species such as deer, upland birds and quail. Its diverse topography and vegetation offer varied, dispersed, semi-primitive, open and accessible recreational opportunities. The resource area is also contiguous to the following Federally-administered lands: BLM's California Desert Conservation Area and Bishop Resource Area, Cannell Meadows and Greenhorn Ranger Districts of Sequoia National Forest, Sequoia National Park, and the U.S. Army Corp of Engineers' Lake Isabella. These heavily-used parks and forests, which are themselves in close proximity to large population centers in the Great Valley and southern California, provide "overflow pressure" to adjacent BLM lands.

Present Use Patterns. The most widespread recreational activity in the South Sierra Management Area is hunting. Fishing, especially along the N. Fork of the Kaweah, South Fork of the Kern and the Lower Kern Rivers, is also extremely popular. Associated with hunting and fishing is dispersed camping. Other significant recreational uses include backpacking, day hiking, nature study, camping, picnicking, swimming, white-water river rafting, horse-riding, pinyon nut collecting, gold panning (on the Lower Kern River), bicycling, off-highway vehicle use, general sightseeing, fuelwood gathering, Christmas tree cutting, rockhounding and snow play. These activities concentrate in the spring, summer and fall with some winter play activities at the higher elevations. Estimates of visitor use range from 9300 visitors per year in the Chimney Peak Special Recreation Management Area, to 60,000 visitor days per year in the Isabella Area.

BLM has constructed 116 miles of the Pacific Crest National Scenic Trail in the southern Sierras in addition to two miles of the six mile Lamont Spur Trail which will connect Canebrake Road to the Spanish Needles saddle on the PCT. Two of the three semi-developed campgrounds in this management area, Walker Pass and Chimney Creek, serve the PCT as well as providing drive-in camping. The third BLM campground in the management area, Long Valley, serves as a trailhead to Domelands Wilderness Area (USFS) and the S. Fork of the Kern River. The Rockhouse Basin Road, near Long Valley Campground, also serves as an (undeveloped) trailhead to Domelands Wilderness Area. Toilet and trash contracts are renewed annually on the Kern and North Fork of the Kaweah Rivers.

The two most popular special recreation use permits in the South Sierra Management Area include an annual NORBA-sponsored mountain bicycle race at Keyesville, and commercial river-rafting permits issued in conjunction with the USFS on the Kern River.

The South Sierra Management Area contains Caliente Resource Area's greatest concentration of wilderness study areas. Out of 113,618 total WSA acres, BLM has identified 39,318 BLM acres (34%) as suitable and 74,300 BLM acres (65%) as non-suitable. In addition, a joint USFS/BLM study of the main portions of the Rockhouse WSA recommended that 12,500 acres of public land (36%), out of 35,000 acres studied, be designated as wilderness. The suitable acreage falls into the Owens Peak, Sacatar, and part of the Rockhouse Basin Wilderness Study Areas, while the unsuitable areas are within Sheep Ridge, Milk Ranch-Case Mountain, Piute-Cypress, Rockhouse Basin and Domelands WSAs. Several rivers and streams are under study for wild and scenic river status. These include the South, East, Middle and North Fork of the Kaweah, the Lower Kern, Salt Creek, Long Valley, and Spanish Needles, Bodfish, Erskine, Clear, Pine, Chimney, Caliente and Canebrake Creeks. At present there are two designated ACECs, Blue Ridge, declared

because of its critical California condor habitat, and Piute Cypress, designated because of the presence of that unusual tree.

Although growing pressures for OHV use continue, the area is "limited" to designated roads with no "open" areas. The 1985 Federal Register notice closed to OHV use the Blue Ridge Management Area, the road leading into Advance Colony Site, the Piute Cypress Groves, the Pacific Crest National Scenic Trail and six spur road access points to archaeological resources.

The Canebrake/Long Valley Loop Road and the Kelso Valley Road are nominated as scenic backcountry byways.

Approximately 20% of the management area is classified as VRM Class II, more than 33% as Class III and the remainder as Class IV.

The special recreation management areas in the South Sierra Management Area are: the North Fork of the Kaweah River, Keyesville/Lower Kern River Area, Chimney Peak Area, the corridor for the Pacific Crest Trail, and Case Mountain. All but the latter receive heavy visitor use, but law enforcement coverage is minimal and developed facilities are lacking. Therefore these popular, scenic areas of the management area are also the ones where OHV, shooting, pollution, and visitor-use conflicts are the most common. Case Mountain receives few visitor problems, attributed to limited public access.

Pacific Crest National Scenic Trail (PCNST) Special Recreation Management Area. The National Scenic Trail Act established the Pacific Crest Trail (PCT) in 1968: a hiking and equestrian trail extending approximately 2600 miles from Mexico to Canada. Of this, Caliente Resource Area has responsibility for a 116 mile portion, in addition to several short spur trails, in south-central California. These portions are divided into five management segments (Bear Mountain, Owens Peak, Dove Springs, Cache Peak and Cameron segments). The principal trail corridor as well as the Recreation Area Management Plan is complete. The outstanding management issues include the provision of adequate trailheads and water source development, the development of spur and loop trails, the maintenance of the trail tread, its signs, registers, developed water sources, associated campgrounds (Walker Pass and Chimney Creek), the protection of the trail's VRM Class II (defined in Appendix H) designation, and the enforcement of a quality hiking and equestrian experience, free from illegal conflicts with and tread destruction from off-road motorbikes.

Keyesville/Kern River Special Recreation Management Area. Located west of Isabella Lake along the Kern River, the approximately 2500 acre Kern River/Keyesville Special Recreation Management Area is an area of relatively high visitor use. It is approximately 45 miles east of Bakersfield. The main recreational focal point is the Bureau's three whitewater rafting launch areas for the lower Kern River. Approximately 12,000 commercial and noncommercial rafters use the area each year. There is a proposal for another launch area, to be used during low water years. Take-outs are located on USFS lands downstream. The Lower Kern River is eligible for Wild and Scenic River study. Intense camping, recreational gold panning, fishing, target shooting and OHV use also occur in this area. In the past three years, Keyesville has served as the venue for the annual NORBA mountain bicycle race. This group has requested an "Adopt-A-Bicycle Trail" route through Keyesville, and the adjoining USFS land.

No specific management plan yet exists for this area. The principal issues which must be addressed are the degradation of the resource by overuse, particularly OHV use off established routes, limited use supervision and patrols, and conflict of resource uses (e.g. grazing, mining vs. recreation).

Chimney Peak Special Recreation Management Area. Located 70 miles east of Bakersfield in the southern Sierra Nevadas, the Chimney Peak area is popular for hiking, horseback riding, OHV use, hunting and

shooting, pinyon nut collecting, Christmas tree cutting, and as an access to the USFS's Domeland Wilderness Area. The Bureau provides two developed campgrounds: Long Valley with 12 sites and Chimney Peak with 37 sites. Both campgrounds provide water in season, designated sites with picnic tables and barbecue areas, and pit toilets, but no trash collection. A portion of the Pacific Crest National Scenic Trail traverses the management area. The Chimney Peak Fire Station situated in the northeast corner of the SRMA serves also as a volunteer overnight site and an information center. Plans are in progress for improvement and expansion of these functions. Management issues of this area include the routine upkeep of the developed campgrounds and replacement of their 25 year old water system, improvement of the road and sign system, limited patrols, visitor safety, and resource protection, and increasing visitation from southern California. Parts of this management area are under study for Wild and Scenic River determinations, wilderness status, and scenic backcountry byway designation.

North Fork of the Kaweah River Special Recreation Management Area. The 2240 acre North Fork of the Kaweah River area is located adjacent to Sequoia National Park, just north of the town of Three Rivers. The majority of the area is accessed by the public at three high-use sites: picnic site #1, Advance site, and Cherry Falls site. These areas are popular for swimming and tubing, sunbathing, picnicking, dispersed camping, fishing and viewing the scenery. Unfortunately they are also associated with partying and drinking from local users. The water quality, especially during the recent drought, is questionable. The Kaweah River and its tributaries are under study for Wild and Scenic River designations. Due to financial constraints, the Bureau has been able to supply only limited trash pick-up and summer patrol.

Case Mountain Special Recreation Management Area. Case Mountain is within the Kaweah Planning Unit, and shares a common boundary with the Sequoia/Kings National Park, and the Sequoia National Forest. The closest population center is the town of Three Rivers. The Bureau has obtained administrative access to the area but the public is barred by private property from entry. The precipitous topography, vegetation (especially the grove of Giant Sequoia trees), and fast flowing streams exert considerable aesthetic appeal, and in turn, naturally limit access. At present, this area is used primarily by people looking for a wilderness experience: hikers, naturalists, and hunters. This area has unique recreation resources: Giant Sequoia groves; beautiful vistas of Mineral King valley, the back country of Sequoia National Park and the coastal ranges; cultural values; and the Mineral King deer herd. Access to private lands on Case Mountain provides the key to recreational use of the area and this issue is addressed in the RMP.

Vegetation

Ranging from the Pacific coast to the southern Sierra Nevada, the Caliente Resource Area is biologically diverse. Public land ranges from coastal dunes and offshore rocks and islands, to the crest of the Sierra Nevada. Approximately 49 plant communities (Holland, 1986) are known or suspected to occur on public lands. Many of these plant communities are considered rare by the California Department of Fish and Game (Appendix B-4). For a number of these rare plant communities, including Valley Saltbush Scrub, Valley Sink Scrub, Southern Interior Cypress Forest and Southern Dune Scrub, public land plays an important role in maintaining representative examples.

The Caliente Resource Area is within the California Floristic Province. The California Floristic Province is divided into regions which closely correspond with the management areas (Hickman, 1989). The Coast Management Area is comprised of the Central Western California Region and Southwestern California Region. Plant communities in the coastal area range from chaparral and oak woodland to coastal scrub and coastal dunes. The Valley Management Area is comprised of

the Great Central Valley Region. Valley vegetation generally consists of valley and foothill grassland, chenopod scrub, and valley oak woodland. The South Sierra Management Area is comprised of the Sierra Nevada Region. Public land in the south Sierras are typified by Great Basin pinyon woodland, Mojavean pinyon woodland, digger pine woodland, oak woodland, chaparral, upper montane mixed coniferous forest at Case Mountain and Milk Ranch Peak, and Joshua tree woodland.

Of the nine types of oak woodland (Holland 1986), six are known or suspected to occur on public land within the Caliente Resource Area. Black oak woodland and blue oak woodland occur in the South Sierra Management Area. Valley oak woodland may also occur on public land parcels in the foothills along with interior live oak woodland. Coast live oak woodland occurs within the Coast Management Area. Alvord oak woodland occurs in the Temblor Range and may occur on public land parcels in the Tehachapi Mountains. Of these six oak woodlands, the continual existence of valley oak woodland is the most threatened. Much of its original habitat has been converted to agricultural and urban use. Regeneration is slow and the young seedlings are choice food for rodents, feral pigs, and cattle. Cattle also cause mortality by trampling. Many communities in the San Joaquin Valley are now making an effort to protect valley oak woodland. An increased market for oak firewood since the mid-1970s has resulted in significant increases in the harvesting of other oak species such as black oak.

There are 148 sensitive plant species known to occur within the resource area. Of these only 47 are known to occur on Bureau land within the Resource Area. Another 59 plant species are suspected to occur on public land. The remaining 42 species have a low potential to occur on public land. Sensitive plant species include Federally listed species and candidates for listing, State listed species, and species in the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (Sept. 1988).

There are five Federally listed plant species within the resource area. California jewelflower, Bakersfield cactus, Kern mallow, and San Joaquin woolly-threads are Federally endangered. Hoover's woolly star is Federally threatened. All five species occur within the Valley Management Area. The Bakersfield cactus also occurs within the South Sierra Management Area along Caliente Creek.

The Kern mallow (*Eremalche kernensis*) is one of the most highly restricted Federally listed plant species on the valley floor. Historically, it was known to exist in a small portion of the San Joaquin Valley from the McKittrick area on the south to the Buttonwillow area on the north. This region is known as the Lokern Road area. Much of the habitat for Kern mallow has been degraded by agriculture, oil and gas development, sheep grazing and the building of the California aqueduct. Approximately 1200 acres of public lands in the Lokern area support seven populations of the Kern mallow. Eighty-five percent of the total essential habitat and extant populations are privately owned.

Hoover's woolly-star (*Eriastrum hooveri*) is the most widespread of the listed species. Its distribution ranges from Fresno County to Kern County then southwest to Santa Barbara Canyon in Santa Barbara County. Hoover's woolly-star occurs in saltbush scrub and valley grassland vegetation. Many of the historic locations have been eliminated by agricultural and urban expansion. However, many new populations have recently been located in the Buena Vista Valley, the lower foothill slopes of the Elk Hills Naval Petroleum Reserve No. 1, and the Kettleman Hills.

The San Joaquin woolly-threads (*Lembertia congdonii*) is virtually extirpated from the valley floor. It once ranged from San Benito County in the north to Santa Barbara and Kern Counties in the south. Habitat for this species is found in valley grasslands, and sometimes in scattered saltbush scrub below the 1500 ft. elevation range. The Elkhorn and Carrizo Plains support the majority of the extant remnant populations, most of which occur on

Federal lands. San Joaquin woolly-threads have recently been found in the Kettleman Hills area. It is not known how extensive this population is.

The California jewelflower (*Caulanthus californicus*) is currently known from the Carrizo Plain, the Cuyama Valley, and the Kreyenhagen Hills in the Hollister Resource Area. Populations are associated with grassland scattered with Mormon tea (*Ephedra* sp.) and juniper woodland. One artificial population has been introduced in the Semitropic Preserve and is maintained by The Nature Conservancy. Historically this species ranged from Fresno County to Kern and Santa Barbara Counties. Agriculture and overgrazing eliminated much of the habitat of the jewelflower, and today it is considered one of California's most endangered plant species.

The Bakersfield cactus (*Opuntia treleasei*) is endemic to Kern County. Historically, the cactus extended from the city of Bakersfield to near the town of Caliente (approximately 25 miles east) then south to Wheeler Ridge in the Tejon Hills, about 20 miles south of Bakersfield. The habitat for the Bakersfield cactus is found in low elevation grassy hills and mesas, and along gravelly, rocky ridgelines. It is also found in broad, sandy floodplain areas near the foothills. The Nature Conservancy has established the Sand Ridge Preserve specifically for the protection of this species. No populations of the Bakersfield cactus have been found on BLM lands so far, but some do occur on split-estate parcels with Federally owned minerals and private surface.

Recovery Plans have not been written for any of these plant species, nor have any life history and ecological studies been initiated thus far. Several Habitat Conservation Plans (HCPs) are currently in progress in an attempt to address the conservation and recovery needs of listed species in the San Joaquin Valley (plants and animals). The Bakersfield Metro HCP was recently completed and addresses the concerns for the Bakersfield cactus in a portion of its range. However, the conservation of significant populations outside the Metro area have not as yet been addressed. The Kern County and Pleasant Valley Habitat Conservation Plans are in progress.

Areas important for the long-term protection, enhancement, and recovery of the Federally listed plants include: Lokern Road for the Kern mallow; Wheeler Ridge for the Bakersfield cactus; Buena Vista Valley for Hoover's woolly-star; Carrizo Plain and Cuyama Valley for the San Joaquin woolly-threads and the California jewelflower; and Kettleman Hills for the San Joaquin woolly-threads and Hoover's woolly-star.

Besides forestry species, other species of potential economic value include pinyon pine for its seeds; and grasses, yucca stalks, and other plant materials for horticultural interests.

There are approximately 47 noxious weed species within the resource area as identified by the California Department of Food and Agriculture in its 1991 list of noxious plants (see Appendix B). It is not known how many of these species occur on Bureau lands. The Caliente Resource Area cooperates with other Federal, State, and county agencies in the control or eradication of noxious plant species on public lands. Of particular concern is the wormleaf salsola, which is rapidly expanding its range in the Temblor Range. This perennial species, which is related to the more widespread Russian thistle, was introduced into the Temblors in 1969 as part of a range experiment. When the research was concluded, the test plots were abandoned. Wormleaf salsola now is scattered across 4000 acres. The U.S. Department of Agriculture Animal and Plant Health Inspection Service is working to control this species. Besides competing with native vegetation, this plant is a year round host for the beet leafhopper--another noxious pest.

Vegetation - Coast Management Area

The Coast Management Area has a large number of plant communities. Over 20 plant communities as defined by Holland occur over this unit. Little is known of the occurrence of these plant communities on Bureau land.

Several of the plant communities have become sufficiently rare to cause local concern. Sensitive plant communities within this management area include northern interior cypress forest, serpentine chaparral, southern dune scrub, southern bishop pine forest, oak woodlands, and riparian communities.

No Federally listed plant species occur within the Coast Management Area, but there are 13 sensitive plant species known to occur on or adjacent to Bureau land. Another 31 sensitive plant species are suspected to occur on Bureau land. There are additionally 26 more sensitive plant species which occur within the boundaries of the management area. These 26 species are unlikely to occur on public land. Little is known botanically about many of the Bureau parcels within this management area.

Little survey data is available for the presence of sensitive plants on public lands. Many potentially impacting uses and activities may occur in varying degrees upon these lands. Generally the lands accessible and lacking dense vegetative cover are subject to surface disturbing activities and resultant impacts to sensitive plant species and their habitats. Many of the inner coast range areas can receive extensive grazing usage in livestock allotments. Parcels located nearer the coastal zone tend to be located in steep and densely vegetated areas. Oil and gas development occurs on a limited scale in both the Sespe and Point Conception areas. It is unknown if any sensitive plant species are located within the active oil producing leaseholds.

Many of the coastal parcels have outstanding botanical resources. Examples include Point Sal with coastal dune communities and several sensitive plant species; Salinas River with its riparian community; Tierra Redonda Mountain with unique sand dunes and sensitive plants; Frog Pond Mountain for exclusive bay forest; Cypress Mountain for the Sargent cypress forest and several associated sensitive plant species; Irish Hills for the Bishop pine forest; and Rusty Peak for sensitive plant communities and species.

Vegetation - Valley Management Area

The Valley Management Area supports some of the most endangered plant species and communities found in California. Five Federally listed and four State listed plant species are found within the boundaries of the management area. In addition, the distribution and range of 22 sensitive species, wholly or in part, occurs within this management area. Bureau lands are known to support at least 10 of these species with an additional 11 suspected to occur, but sufficient inventories have not yet been conducted. A complete listing of these species is found in Appendix B. Most of these species are associated with valley saltbush scrub and valley sink scrub.

Natural Communities. The natural vegetation of the southern portion of the San Joaquin Valley that supports several of these listed species is characterized by Valley Saltbush Scrub. Formerly, it covered over 3,000,000 acres in the broad plains of the valley floor and foothills and was dominated by two perennial species of saltbush (*Atriplex polycarpa* and *Atriplex spinifera*). The rapid development of irrigated agriculture, urbanization, and oil and gas production have in the last 10-20 years brought this community near the verge of extinction. Less than 10% of the original vegetation is now left, most in degraded to fair condition. Significant remnant samples of the Saltbush Scrub community are located at Lokern Rd., Semitropic Ridge, Lost Hills and Buena Vista Valley. They are critical links for the recovery of listed species due to their size, diversity, condition and unique assemblages of endangered species.

Valley Sink Scrub is another natural vegetation type found in the Valley. It is restricted to valley bottoms near lake beds as exemplified by Kern, Tulare, and Goose Lakes. It is best developed in highly alkaline soils which have no external drainage. The vegetation of Valley Sink Scrub is made up of plants that can tolerate high levels of salinity and alkalinity such as iodine bush (*Allenrolfea occidentalis*) and seepweed (*Suaeda fruticosa*). Water developments and land reclamation for

agriculture have virtually eliminated this community from the Great Valley. It is now considered to be one of the rarest communities in the world by the California Natural Diversity Data Base, and is virtually extirpated throughout its range. The BLM has established an ACEC at Goose Lake approximately 40 acres in size which exemplifies some of the unique characteristics of this community. Soda Lake ACEC in Carrizo Plain is an excellent example of Valley Sink Scrub vegetation and additionally supports several very rare plant species: alkali larkspur (*Delphinium recurvatum*) and Lost Hills saltbush (*Atriplex vallicola*), both associated and restricted to this rare community. BLM is attempting to protect, enhance and restore any samples of this community under its jurisdiction and pursue acquisition of available parcels for ecosystem protection and recovery of rare species.

Carrizo Plain Natural Area. A variety of communities and habitat types that vary dramatically from one geographical area to another occur on public lands on the Carrizo Plain. When first seen, the Plain gives the impression of being a forty-five mile valley of grasses with fingers of chaparral extending over the bordering mountain ranges. Closer inspection reveals at least six distinct communities: California Juniper association, Desert Scrub, Alkali Sink Scrub, Alkali Wetlands and two Grassland Communities (one on the Elkhorn and the other on the valley floor). Elements of several major Floristic Provinces (Mojavean, Great Valley, and Inner Coast) are found within the Natural Area boundaries.

The North portion of the Plain containing Soda Lake is where some of the finest examples in the State of Alkali Wetland and Alkali Sink Scrub communities can be seen. The shrubs in this area are spiny saltbush (*Atriplex spinifera*) and iodine bush (*Allenrolfea occidentalis*). Several native grasses including *Poa scabrella*, *Distichlis spicata*, and *Elymus triticoides* form the herbaceous perennial layer in these communities. Rare plant species that are associated with these highly alkaline areas include the alkali larkspur, Lost Hills saltbush, and Jared's pepper-grass - a species endemic to Carrizo Plain covering approximately 100 acres with its lemon yellow flowers. In the spring this area as well as the extensive Grassland community to the south are covered with annual wildflowers. The broad Plain on a "good" year is renowned for its magnificent wildflower displays of lupines, goldfields, purple owl's clover, and poppies.

On the lower hills of the western side of Carrizo Plain, remnants of pristine native grasslands can be found. It is here where the California jewelflower was rediscovered after not being seen for several decades. Efforts are being made to find more locations of the jewelflower throughout this community. In this same community, where soils are generally sandy and predominantly composed of Arabian grass (*Schismus* sp.) grass and other low annuals, 95% of the extant populations of San Joaquin woolly-threads are found. Carrizo therefore serves as a vital link to the continued existence and recovery for these two taxa.

On the eastern edge of Carrizo, along the drainages of the Elkhorn Plain, remnant saltbush scrub habitat supports small population areas for Hoover's woolly-star.

In addition to these three Federally listed species, the Carrizo Plain Natural Area supports 12 other sensitive plant species included in Appendix B.

Caliente Mountain (the highest point in San Luis Obispo County), as well as the entire Caliente range is included in this management area. The natural communities of this mountain range have generally been described as: Upper Sonoran Subshrub, dominated by goldenbush (*Haplopappus* sp.) and gray California buckwheat (*Eriogonum fasciculatum* var. *polifolium*); Semi-desert Chaparral best represented by California Mormon tea (*Ephedra californica*), saltbush (*Atriplex* sp.), winterfat (*Ceratoides lanata*) and goldenbush; and Interior Coast Range Saltbush Scrub, a community dominated by common saltbush (*Atriplex polycarpa*) with a sparse annual understory representing elements of San Joaquin Valley endemism.

The Caliente Range has been poorly botanized due to lack of access, historically. No Federally listed plants are known to occur at this time, but potential habitat for Hoover's woolly-star and San Joaquin woolly-threads does exist in the saltbush scrub community on the lower slopes of the range. Several Federal candidates are documented from the Caliente Mountain Range, including: hollisteria, oval-leaved snapdragon, and stink bells.

Lokern. The Lokern Road area supports essentially all of the total habitat and extant populations for the Kern mallow. Eighty-five percent of this area is privately owned. Populations of the Kern mallow are currently threatened by geophysical exploration, oil and gas development, and sheep grazing.

Vegetation - South Sierra Management Area

The South Sierra Management Area is botanically one of the most diverse and unexplored areas within the Caliente Resource Area. It is known to contain at least 30 native plant communities described in Holland's "Terrestrial Natural communities of California". Several of these communities are considered to be rare in their own right by the California Natural Diversity Data Base (CNDDB) including: Piute cypress forest, giant Sequoia forest, Joshua tree woodland, and alkali meadows, along with several types of riparian woodlands and oak woodlands.

Much of the South Sierra Management Area has not been surveyed for sensitive plant species due to inaccessibility and rough terrain. More accessible lands are occasionally subject to surface disturbing activities such as grazing and OHV usage and potential resultant impacts to sensitive plants. A much larger percentage of this management area receives little or no impact from Bureau authorized activities because of the isolated nature of the area.

The management area abounds in rare herbaceous plant species, with 19 taxa known to occur on BLM lands and another 12 highly suspected of being found once adequate inventories are initiated. The Bakersfield cactus, a Federally endangered species, occurs in the western portion of this management area around Caliente Creek. No other Federally listed threatened or endangered plants occur in this unit, however two Category 1 species, Kelso Creek monkeyflower and Piute Mountains navarretia, have been documented on BLM-owned parcels. No less than 18 new species have been described from the remote and little-explored portions of the Southern sierra Nevada range, an area purported to include representation from 60% of the California flora. From Walker Pass to the Spanish Needle, along and near the Pacific Crest Trail can be found excellent examples of rare species such as: Spanish Needle onion, Nine Mile Canyon phacelia, The Needles buckwheat, Charlotte's phacelia, and Walker Pass milk vetch.

The management area also includes a number of sensitive or unique plant communities or habitats that support sensitive plant species. Marble outcrops that support limestone endemic species occur along Erskine Creek and at Comb Rocks near Milk Ranch Peak. Alkali meadow communities around Isabella Lake, South Lake, and hot springs areas support the alkali mariposa lily. Piute Cypress groves, rare communities in and of themselves, additionally support other rare plants such as the Piute Mountains jewelflower and Kern County larkspur.

Black Stain Root Disease -- Chimney Peak Area. Black stain root disease is a fungal disease that appears to have affected approximately 15,000 acres of singleleaf pinyon (*Pinus monophylla*) in the Chimney Peak region. At this time the disease has contributed to the mortality of thousands of trees in this extensive forest. Disease centers have also spread and new infection areas have become established since the first biological evaluation was done in 1983 when at least 100 mortality pockets were noted throughout the 10,000 acre region surrounded by the Long Valley Loop road.

Black stain root disease is not easily controlled

or even diagnosed. In addition, most black stain research has been conducted on other conifer species and this knowledge cannot necessarily be applied to pinyon forests. There are only two other black stain infestations in singleleaf pinyon forests in California and research on their disease dynamics has just been initiated.

Originally, the Bureau's management strategy for the disease focused on ways to eradicate it. Currently, the strategy involves monitoring the pinyon forest's health and whether or not the disease situation is of great concern in relations to management priorities in the area.

A limited public firewood collection program was undertaken in the Chimney Peak area in 1985. The program has not been continued due to the need for further analysis of its consequences. In addition, the area's importance for wildlife and recreation plus its proximity to the desert and wilderness study areas places constraints on the types of resource extraction activities to be permitted there.

Water Resources

The critical components of surface water and groundwater management within the Caliente Resource Area are availability, use, and quality. In many instances, the primary region of influence for water resources is beyond the boundary and management responsibility of the Resource Area. In the case of perennial streams, most originate within National Forests, National Parks, or State and in some instances, private, lands. Typically, only segments of stream reaches run in and out of Bureau managed lands.

The allocation of surface water is controlled by local water/irrigation districts. The Kern County Water Agency Report of September 1991 lists a number of the districts and their areas of jurisdiction. On public lands, the allocation of waters is through the Department of Water Resources for appropriation of waters out of live streams, rivers and lakes. Federal water rights are vested through the Public Water Reserve system for springs originating on public lands. The use of water on public lands is not a vested right. The Bureau and public users of water on public lands must file with the State for the appropriation of water from riparian systems. Springs not having hydrologic continuity may be secured by the Bureau by means of the Public Water Reserve System. Over 700 filings for both appropriated and Public Water Reserves are documented in the Resource Area.

The California Regional Water Quality Control Board has jurisdiction for water quality in California. It is further divided into local regions. The majority of the Resource Area is located in the Central Valley Region headquartered in Fresno, and the Central Coast Region, headquartered in San Luis Obispo. A few parcels of public land within the Coast Management Area lie within Region 4, the Los Angeles Region. A water quality assessment report which catalogs inventoried California waterbodies, listed according to geographical region and waterbody type, is published annually. It provides a description of each waterbody's current water quality, and the nature and source of possible impairments. Each local Region has a set of water quality standards, rules, and regulations for its area of jurisdiction. All operations having a potential effect on water quality must be in compliance with the requirements of the appropriate Regional Board.

A nonpoint source pollution threat, in the form of excessive sediment production, exists on all watersheds in the Resource Area. Watershed condition is the indicator used to measure the degree of vulnerability. Watershed conditions are monitored by various means, including riparian monitoring stations and range condition.

With the exception of the aquifers associated with the San Joaquin Valley, such as the Tulare Lake Basin, and small coastal valley aquifers, groundwaters are more typically associated with the water tables of the few streams/rivers that dissect various portions of the Resource Area.

Water Resources - Coast Management Area

Mediterranean climate and forest characterize the California Coast Range, where managed lands within the Coast Management Area are scattered through three coastal counties. Major hydrologic features are the manmade reservoirs, including Nacimiento Reservoir, Lopez Lake, Santa Margarita Lake, and Twitchell Reservoir. They were constructed to capture the winter storm runoff from the generally low flowing rivers and streams of the area.

The scattered public lands in the area do not have live streams or lakes, but border or contain segments of stream reaches. More importantly, these managed lands are portions of watersheds which provide runoff to streams, lakes and reservoirs for drinking water, crop production, fisheries, wildlife, and recreation.

The State Water Resources Control Board Water Quality Assessment Report for 1990 identified 84 out of 166 inventoried streams and rivers in Region 3 (central coast counties from Santa Cruz to the Ventura County line) as having nonpoint source pollution problems. The primary causes cited were low flows and sedimentation. A few noteworthy exceptions exist where other forms of nonpoint source pollution problems have been identified. Extensive public lands make up portions of watersheds of some of these impaired rivers. Water from the Cuyama River has been found to contain elevated levels of nitrates, sulfates and total dissolved solids. An assessment of the Las Tablas Creek showed toxic discharges from mines causing drinking water impairment.

Past efforts to control nonpoint source pollution include riparian management, seasonal grazing strategies, and requirements for lessees to comply with laws and requirements designed to safeguard water resources.

Water Resources - Valley Management Area

The Valley Management Area consists primarily of the Tulare Lake Basin. This basin is the southern extension of the Central Valley and is bordered on the East by the Sierra Nevada Mountains, along the south by the Tehachapi and San Emigdio Mountains, and on the west by the Coast Range. The basin is a great structural downwarp between two zones of uplift. The valley floor is covered by deposition from the Sierra Nevada and Coastal Range Mountains, and is approximately 25,000 feet thick. The Carrizo Plain to the west, is rain-shadowed and typifies what the old San Joaquin Valley probably looked like some 200 years ago.

In general terms, this portion of the San Joaquin Valley floor is primarily an unconfined aquifer. Some areas west of Interstate 5 are considered a confined aquifer, separated by an impervious clay(s) layer(s) from the deeper unconfined aquifer. Perched waters, which are separated from aquifers by various lenses of clay, are common throughout the basin.

Remnants of the ancient valley, which previously contained a large body of water, are present as dry lakes and interconnecting sloughs. The alluvial plains of the valley grade into foothills of the Sierra Nevada Mountains and the Coastal Range. The major drainages are the Kern River and the Kaweah River; the Kern River is the major hydrologic feature of the area. It originates in the Sierras and flows toward Bakersfield. In most years, the river is completely consumed for irrigation before it reaches Bakersfield. However, during water surplus years the river reaches its final destination in the Buena Vista Lake Basin. Precipitation in the area ranges from 5 inches in most of the valley bottom, to 8 inches along the foothills.

The only other principal river in the management area is the Kaweah River. This river likewise originates in the Sierras, and flows into the Kaweah Lake.

The remaining natural surface water system of the valley is better described as consisting of intermittent and ephemeral drainages. These serve to carry and conduct storm water runoff. Overlaying the entire area is a network of

irrigation ditches and canals serving one of the largest agricultural producing regions in the country. The California Aqueduct runs almost parallel to Interstate 5 in the western half of the Resource Area, from the Fresno County line south to Wheeler Ridge.

The present status of the water quality for the entire study area has been assessed in detail by the Kern County Water Agency (Water Supply Report, Sept. 1991). The groundwater basin in the Caliente Resource Area portion of the San Joaquin Valley has no outflow, except in extremely wet years. Therefore, new salts introduced into the basin with imported water supplies are retained in the basin. The groundwater is the recipient of these salts and other contaminants, in the form of recharge waters or return flows from irrigation, municipal use, and industrial uses. Efforts to protect groundwater from further oilfield contamination include the implementation of the well head protection program, design of waste injection wells, ground water modeling, and increased efficiency of conjunctive use programs. In some areas, oil companies discharge their waste waters into lined and unlined sumps, potentially degrading the underlying aquifer. The extent of such degradation has not been quantified at this time.

Water Resources - South Sierra Management Area

The major hydrologic features of this management area are associated with the principle rivers: the Kern, the Kaweah and the Tule; and their associated tributaries, reservoirs and lakes. Groundwaters are associated with the high water tables of these rivers.

Runoff from snowmelt in the Sierras combined with the higher precipitation of the foothills is the major source of peak flows in the area. Precipitation ranges from 10 to 50 inches annually, with the mountain areas on the high end and the alluvial plains of the valley the drier areas. Watersheds on public lands provide runoff which feeds the various river systems, lakes and reservoirs. These water bodies are important for drinking water, irrigation, fisheries, wildlife, recreation and groundwater recharge of the great central valley toward which they flow.

The water quality assessment report for 1990 identifies the Kern River, Lake Isabella, the Kaweah river, and Kaweah Lake as impaired waterbodies. The North Fork of the Kaweah River, a source of urban drinking water, has been reported to have elevated levels of fecal coliform. Problems include fisheries habitat degradation, sedimentation build-up, and inadequate flows due to nonpoint source pollution as excessive sediment delivery.

Recent inventories conducted by the Bureau, USFS and NPS have identified watershed problems and riparian concerns. A number of projects have been completed on tributaries of the Kern River, specifically in the Long Valley watershed. Projects include rock check dams, grade stabilization structures, and fencing off of sensitive riparian zones. Additional project work needs to be inventoried and completed.

Wildlife

Management of animals and their habitat is most effective and efficient when their populations are large enough to withstand short-term environmentally caused decline. As species and the habitats on which they depend become scarce, the options available to managers become limited biologically, politically and economically. A growing emphasis on a large-scale view of wildlife resources is developing in an effort to prevent the need to list species while providing for their long-term survival. This concept is referred to as biodiversity. The field of biodiversity combines ecology, which emphasizes how species interact with the same and other species and their environment, with conservation biology, which seeks to enhance a species' long-term chances of survival through an understanding of how a species' genetic makeup is affected by its ecology and the availability, distribution and abundance of its habitat. Biodiversity is threatened by habitat loss, fragmentation, or degradation. It is also threatened by the disruption of natural ecological processes

such as fire or succession. Lastly, biodiversity can be threatened by the introduction of exotic species or by genetic swamping. Genetic swamping can occur when one of two or more closely related species is given a competitive edge over another species as a result of management. The subsequent increase in numbers of this species can result in an increased incidence of hybridization and concomitant reduction of genetic integrity of the out-competed species.

Twenty-seven Federally listed wildlife species occur within the resource area boundary. Ten of these species, not including two different insects, are known to occur, or are reasonably likely to occur, on public lands within the Resource Area (Appendix B-1). Of these, public land provides significant habitat for the blunt-nosed leopard lizard (Federal Endangered/California Endangered), California condor (Federal Endangered/California Endangered), giant kangaroo rat (Federal Endangered/California Endangered), San Joaquin kit fox (Federal Endangered/California Threatened), and Tipton kangaroo rat (Federal Endangered/California Endangered). Public land provides potentially important habitat for the Kern primrose sphinx moth (Federal Threatened).

Special status wildlife species include Federal candidates, California listed species, California candidates, California Species of Special Concern, California fully protected species, Bureau and Forest Service sensitive species, Audubon Blue List and Audubon Species of Concern. Most special status species have more than one special status or are also Federally listed. Within the resource area boundary there are 42 Federal candidates, 30 California listed species, 1 California candidate, 63 California Species of Special Concern, 2 California fully protected species, 1 Audubon Blue List and 3 Audubon Species of Concern (Appendix B-1). Over half the special status species are known to occur or are reasonably likely to occur on public lands.

All or a portion of 15 deer herd units occur in the Caliente Resource Area. Mule deer occur on public lands throughout the Sierras and Sierra foothills, the Temblor Range and Caliente Range. Black-tailed deer occur on most public lands from Caliente Mountain and the Coast Ranges west. Significant numbers of black bear occur on public land primarily in the Case Mountain, Milk Ranch Peak, and Chimney Peak areas. Pronghorn have been reintroduced into the Carrizo Plain and Antelope Valley and are likely to use public land in the Temblor Foothills, Carrizo Plain, Cuyama Valley, Maricopa, and Tehachapi areas. Tule elk have been reintroduced to the Caliente Range and are likely to occur on public land in the Caliente Range and Carrizo Plain. Wild pigs occur on public land in the Caliente Range, Blue Ridge, Case Mountain and Milk Ranch Peak areas.

Both California and mountain quail occur on public lands. California quail primarily occur on scattered coastal parcels, the Caliente Mountain and Temblor Range, and public land in the Sierras and Sierra foothills. Limited numbers of mountain quail inhabit public land in the Sierras, including Case Mountain, Milk Ranch Peak, Blue Ridge and Chimney Peak. A small, disjunct, mountain quail population occurs at Caliente Mountain. Chukar partridge inhabit public lands in the Temblor Range, Caliente Mountain, Freeborn-Hubbard, Kelso Valley and Chimney Peak areas. Blue grouse can be found on public land in the Case Mountain, Milk Ranch Peak and Blue Ridge areas. Mourning doves occur throughout the resource area. Bandtail pigeons are primarily located in the Case Mountain, Milk Ranch Peak and Blue Ridge areas, with limited numbers in the Lake Isabella area. Wild turkey may occur along the North Fork of the Kaweah River. Cottontail and jackrabbits are dispersed throughout the resource area.

Furbearers, including bobcat, coyote, red fox and grey fox, inhabit public land throughout the resource area. Pine marten is likely to occur on public lands in the Case Mountain, Milk Ranch Peak and Blue Ridge areas. Beaver are known from the Salinas, Kern and Kaweah Rivers.

Waterfowl concentration areas are limited to Lake Isabella, Soda Lake, Kaweah Lake and the Kaweah River. Limited numbers of waterfowl also use scattered parcels of public land with pools or ponds throughout the resource area.

Twenty-four raptor species are likely to inhabit public lands, including eight owl species. Primary areas for tree and cliff nesting species include the Sierra foothills and Sierras, Caliente Mountain and scattered parcels in the Coast Range. Ground nesting species, such as the burrowing owl occur throughout the Carrizo Plain, and San Joaquin Valley. Wintering areas include the entire resource area.

The major fisheries areas are Lake Isabella, Kern River, Kaweah Lake and Kaweah River. Ocean fisheries may be available at Point Sal.

Aquatic, wetland and riparian habitat include streams and springs throughout the resource area. Many of these springs and streams are located in the Sierras and Sierra foothills. River systems are limited to short segments of the Salinas River, Kern River, Kaweah River and Tule River. Alkali lakes and ponds include Soda Lake and nearby ephemeral ponds in the Carrizo Plain, and Goose Lake. Public lands also includes intertidal habitat at Point Sal and Lion Rock.

Wildlife - Coast Management Area

The Coast Management Area provides suitable living conditions for a wide variety of plant and animal communities. The principal wildlife values found in this area are the State and Federally listed and special status animals, and the wide variety of habitats and animals present on Bureau land.

Several species usually considered San Joaquin Valley specialties are found in a limited portion of the Coast Management Area. The San Joaquin kit fox is found in two areas, the San Juan Creek drainage as well as a disjunct population at Camp Roberts. The blunt-nosed leopard lizard and giant kangaroo rat are also found in the San Juan Creek drainage. The Bureau has little acreage in this drainage and the presence of these species on public land is undetermined. The Bureau has been the lead agency concerning formal consultation with the U. S. Fish and Wildlife Service relative to Bureau authorized surface disturbance at Camp Roberts. Opportunities for the Bureau to manage beyond the requirements of the National Environmental Policy Act and the Endangered Species Act are limited by the small amount of surface acreage under our control.

A number of species are restricted to the offshore rocks or waters adjacent to Point Sal. The welfare of these species is being given the highest priority in a cooperative regional plan in which the Bureau is taking part. Point Sal is an ACEC with management directives appropriate for the areas' importance to cultural and wildlife resources.

The interior portion of the Coast Management Area is important to a large number of special status species. Most of these species which occur on Bureau land are probably doing quite well since many of the parcels are in good condition. Ensuring diverse and late seral stage vegetative communities should adequately provide for the future viability of these species' populations.

Also in the interior portion of the Coast Management Area, is the habitat of the Federally endangered California condor. The Bureau has signed the recovery plan for this species showing a concern and commitment to manage this species. Within the Coast Management Area are designated critical and essential habitats. The Bureau has some land in the San Juan Creek Essential Condor Habitat Area. The importance of these areas to the recovery of the species is impossible to determine at this time. As newly released birds develop movement and utilization patterns, the Bureau will be in a better position to determine the best management of its land within the essential habitat area. Two other raptors of special interest occur within the Coast Management Area. The Federally endangered peregrine falcon is not known to nest on Bureau land, but does use Bureau

land for foraging during the nesting cycle and during non-nesting seasons. The California spotted owl, a Federal candidate for listing, may occur on Bureau land but further study is necessary to make a definitive determination.

The presence of listed and special status species of invertebrates in the Coast Management Area and on Bureau land needs to be assessed. Currently, little information is available to the Bureau with which to make an assessment. Sources of information need to be gathered and the necessity of inventories determined.

The Coast Management Area has a large number of plant communities. Over 20 plant communities as defined by Holland occur over this management area. Little is known of the occurrence of these plant communities on Bureau land. Several of the plant communities have become sufficiently rare to cause local concern. Oak woodlands, riparian communities and restricted plant communities, such as the sargent cypress stands, have been targeted by agencies, universities and special interest groups for protection and study.

By protecting the diverse assemblage of plant communities in the Coast Management Area, the Bureau can help prevent the need to list species. This is especially important along the coast which is projected to experience tremendous urban growth.

The Coast Management Area contains small to moderate numbers of big and upland game animals. A small herd of tule elk are resident within the borders of Camp Roberts. Recent re-introductions of tule elk and pronghorn to the Carrizo Plain, within the Valley Management Area, may result in populations of both species in the eastern edge of the Coast Management Area. Deer and four species of upland game birds are also found in small to moderate numbers. Managing to enhance biodiversity should be adequate to maintain stable numbers of these economically important species.

Besides those raptors already mentioned, this management area provides nesting habitat for golden eagle, red-tailed hawk, red-shouldered hawk, American kestrel, prairie falcon, Cooper's hawk, sharp-shinned hawk, turkey vulture, western screech-owl, burrowing owl, long-eared owl, great horned owl, northern pygmy-owl, northern saw-whet owl, and flammulated owl. The grass dominated areas provide important wintering habitat for ferruginous hawk, northern harrier, merlin, rough-legged hawk, and short-eared owl. Swainson's hawks also forage over grasslands during fall and spring migrations. In addition to raptors, these grasslands provide important habitat for long-billed curlew and mountain plover, both Federal candidates.

Wildlife - Valley Management Area

Three National Wildlife Refuges, Kern, Pixley and Bittercreek, occur in this management area. Approximately 920 acres of public land are within the boundaries of Bittercreek National Wildlife Refuge. Two National Cooperative Land and Wildlife Management Areas, the Caliente and the Temblor, include approximately 114,000 acres of public land in the Caliente and Temblor Mountain Ranges. These National Cooperative Land and Wildlife Management Areas were established in 1961 to be managed by the Bureau for the development, conservation, utilization and maintenance of their natural resources, including their recreational and wildlife resources. These National Cooperative Land and Wildlife Management Areas are withdrawn from application under the non-mineral public land laws, and from disposition under the homestead, desert land and script selection laws.

Recent historic range of the California condor includes lands along the western, southern and eastern border of the management area. Approximately two townships of the Tejon Ranch Critical Habitat Area are within this management area. No public land in this management area is within the Tejon Ranch Critical Habitat Area. Approximately 45,000 acres of public land in this management area

are within the Carrizo and Elkhorn Plains Essential Condor Habitat Area. Approximately 2,700 acres of public land in this management area are within the Southern San Joaquin Essential Condor Habitat Area and approximately 7,600 acres of public land in this management area are within the San Juan Creek Essential Condor Habitat Area. Essential habitat is deemed important for the recovery of a species but does not have the legal protection of the Endangered Species Act. California condors were released back into the wild in 1992. One potential future release site may be Mt. Pinos, located seven miles south of the management area boundary. Public land in this management area serves primarily as foraging habitat for California condors.

Blunt-nosed leopard lizards and San Joaquin kit fox are know to occur on public lands throughout the management area, including Carrizo Plain, Elkhorn Plain, Buena Vista Valley, Lokern Road, Avenal, Kettleman Hills, Cuyama Valley and Poso Creek. Giant kangaroo rats are known to occur on public lands throughout the west half of the management area, including the Carrizo Plain, Elkhorn Plain, Lokern Road and Buena Vista Valley. Giant kangaroo rats may occur on public lands in the Cuyama Valley. Tipton kangaroo rats occur on scattered tracts of public land that are east or adjacent to the California Aqueduct, and support alkali sink habitat. While the range of the Fresno kangaroo rat extends into the extreme northwestern portion of the management area, only one 40 acre parcel of public land occurs in this area. No Fresno kangaroo rats are known to occur on Bureau lands.

Recovery Plans for the California condor, blunt-nosed leopard lizard and San Joaquin kit fox have been published by the USF&WS. In 1988, the USF&WS began revision of the San Joaquin kit fox and blunt-nosed leopard lizard Recovery Plans. Draft versions of the revised plans were distributed to members of the San Joaquin Valley Endangered Species Working Group for review. Prior to completion of the revised plans, the USF&WS decided to complete a single recovery plan to cover the San Joaquin kit fox, blunt-nosed leopard lizard, giant kangaroo rat and Tipton kangaroo rat. One of the actions in the multi-species recovery plan will be to establish a system of multi-species reserves. These reserves include significant amounts of public land in the following areas: Carrizo and Elkhorn Plains, Buena Vista Valley, Semitropic Ridge, Lokern Road, Telephone Hills, Bitterwater Creek, Chico-Martinez and Midway Valley. Additional public land areas, such as the Kettleman Hills and Avenal area, may also be identified for the reserve system. Acquisition of private lands to support the reserve system has already begun in the Carrizo Plain and Lokern Road Area.

Notable concentrations of special status species occur at Goose Lake, Carrizo Plain, Lokern Road, Elkhorn Plain, and Soda Lake.

Portions of two subunits of the Avenal Deer Herd, the Coalinga and the Temblor, occur in this management area. The unit is comprised of primarily private land. Approximately 21,000 acres of scattered public land in this management area are within the Avenal Deer Herd Unit. This includes public lands near Chico Martinez and McKittrick Summit. The western edge of the South Sierra Deer Herd Unit runs along the east edge of this management area. Less than 150 acres of public land in this management area falls within the South Sierra Deer Herd Unit. The Mt. Pinos Deer Herd Unit includes approximately 8,000 acres of public land in the southern portion of this management area. There is no public land in this Management Area in the Tejon Deer Herd Unit. Approximately 350 acres of scattered public land in this management area are in the Shandon Deer Herd Unit. Most of the Shandon Unit in this management area is private land. The Pozo Deer Herd Unit includes approximately 7,000 acres of public land near Freeborn Mountain and Hubbard Hills. The rest of the Pozo Herd Unit in this management area is on private land. A small portion of the Santa Barbara-Ventura Deer Herd Unit occurs along the southern boundary of this management area, including approximately 4,500 acres of public land.

Deer Herd plans have been written for most of the herds, but do not specify key habitat areas. These herds are primarily residential and do not make extensive seasonal migrations. Key habitat for these herds includes areas of riparian habitat and meadows. Shrubland areas that provide browse may also be considered key habitat.

Pronghorn have been released by CDF&G at various locations in this management area, including the Carrizo Plains and Antelope Valley. Pronghorn observations have been reported from Plieto Hills and Blackwells Corner in the north, through the foothills of the Temblors, and south to Camp Dix. Pronghorn have also been observed in the eastern portion of this management area near Arvin, Cottonwood Creek and northwest of Bena. Although no specific observations occur for public lands, it is likely that pronghorn occur on public lands.

Tule elk have been observed near public land in the Caliente Mountain and Carrizo Plains.

Wild pigs are known to occur on public land along the north and west flank of the Caliente Range, adjacent to the Carrizo Plain. California quail, chukar and dove occur throughout the Temblor and Caliente Ranges.

When seasonally flooded, public lands near Soda Lake, Goose Lake and Copus Road provide wetland habitat for numerous water birds. At least 30 springs are known to occur on public land in the management area, with most of these occurring in the Caliente Mountain range. Most of these springs support an area of riparian vegetation around the source, and many support a linear riparian zone as their outflow travels downstream.

Wildlife - South Sierra Management Area

The Blue Ridge National Wildlife Refuge is adjacent to public lands in the Sierra Management Area. One National Cooperative Land and Wildlife Management Area, Monache-Walker Pass, includes public land in the Isabella, Walker Pass and Chimney Peak Area.

Recent historic range of the California condor (Federally Endangered, California Endangered) includes lands along the western edge of the management area east to the foothills of the Sierra Nevadas. Three of the nine Federally designated Critical Condor Habitat Areas occur within this management area. The Kern County Rangelands Critical Habitat Area includes four townships centered around the town of Woody. The Tulare County Rangelands Critical Habitat Area includes approximately five townships northeast of Porterville and adjacent to the Blue Ridge Critical Habitat Area. The management area includes approximately five townships of the Tejon Ranch Critical Habitat Area east of the town of Grapevine. There are 80 acres of public land within the Tejon Ranch Critical Habitat Area in this management area (T 11 N, R 17 W, Section 2, NESW and NWSE). Approximately 500 acres of public land within the Tejon Ranch Critical Habitat Area (T 11 N, R 17 W, Section 28 SESW and SESE and Section 34 NWNW, NWSW, SWSW and SWNW and E1/2) were sold to Tejon Ranch in 1986 after Formal Consultation with the U.S. Fish and Wildlife Service.

The Blue Ridge Critical Habitat Area includes 17 sections east of, and adjacent to, the Tulare County Rangelands Area, northeast of Porterville. Land owners within the Blue Ridge Critical Habitat Area include Bureau (3,268 acres), U.S. Fish and Wildlife Service (898 acres), California Department of Fish and Game (596 acres), California State Lands Commission (320 acres) and California Department of Forestry (1 acre). The 898 acres owned by the U.S. Fish and Wildlife Service has been designated the Blue Ridge National Wildlife Refuge. An interagency Habitat Management Plan for the Blue Ridge area was written in 1986. The area is also a designated Area of Critical Environmental Concern.

Essential Habitat for the California condor occurs in the Woody Glennville area of the Sierra Management Area and includes

approximately 1,400 acres of public land. California condors were released back into the wild in 1992. One additional potential release site may be Mt. Pinos, located approximately 20 miles west of the southwestern boundary of the management area.

Two other Federally listed species, the San Joaquin kit fox and the blunt-nosed leopard lizard have ranges that extend approximately five miles into the western boundary of the management area. Both of these species are predominately San Joaquin Valley floor species, and typically do not occur above 2,500 to 3,000 feet in elevation. Records on file with the Bureau include kit fox and blunt-nosed leopard lizard observations in the Sierra Management Area. The kit fox is most likely to occur in that portion of the management area near Arvin, Edison and west of the Kern River Canyon.

In addition to the species mentioned above, the bald eagle and the peregrine falcon have been observed within the management area. The peregrine falcon is reasonably likely to occur on public lands but the bald eagle is unlikely to occur on public lands in the management area.

California spotted owls have been documented on public lands in the Case Mountain area. California spotted owls are also suspected to occur in other forested parts of the management area or non forested areas with dense stringers of riparian forest. Such habitat may exists on public land near Three Rivers, Milk Ranch Peak and Chimney Peak.

Within the Kaweah Deer Herd Unit, approximately six sections of public land near Sheep Ridge and Burnt Point are classified as important winter range. Near River Hill there are four sections of public land classified as key winter range surrounded by three sections of public land classified as important winter range, including Milk Ranch Peak and Oak Grove. Approximately 40 acres of public land classified as key winter range occurs north of Calhoon Mountain and is surrounded by three sections of public land, extending south of Cinnamon Gap, east of Calhoon Mountain and north of Grouse Peak, classified as important winter range. There is no public land classified as key or important deer habitat within the boundary of the Hume Deer herd. The Kern River Deer Herd boundary encompasses primarily National Park and National Forest lands. Approximately 6,400 acres of public land on the southern edge of the herd boundary is within the Kern River Deer Herd boundary. Summer and fawning habitat for the Monache deer herd is confined to National Park and National Forest Lands. Public lands near Kennedy Meadows and Long Canyon are used as holding grounds and as a migration corridor. Public lands in the Long Valley area serve as one of three winter ranges for the Monache herd. Over the past ten years numbers of migratory deer that use the Long Valley winter range have decreased. Recent observations of browse species in the Long Valley area indicate that winter forage is not a limiting factor. The California Department of Fish and Game suggests that a combination of antlerless hunts in the 1960's and high mountain lion numbers are suppressing the Long Valley population. Other factors, such as development in the Kennedy Meadows area and impacts to summer and fawning habitat could also be responsible for the Long Valley population decline. Public land within the Tule River deer herd is limited to 640 acres of winter range and 480 acres of intermediate range near Blue Ridge, and 80 acres of winter range and 80 acres of intermediate range near Lone Pine Mountain, south of the Tule River Indian Reservation. The Greenhorn Deer Herd boundary primarily encompasses National Forest lands. Approximately 2,500 acres of public land classified as winter range occurs at Rocky Gulch west of Isabella Lake and adjacent to the National Forest. Approximately 10,000 acres of public land west of Wofford Heights and north of the town of Lake Isabella provides intermediate range. Five subunits of the Piute Deer Herd occur in the management area. Approximately 3,000 acres of public land west of Havilah and 1,900 acres adjacent to the National Forest west of Havilah Canyon occurs within Subunit 1. Subunit 2 contains approximately 17,000 acres of public lands extending east of Havilah, south of Highway

178 and west of Kelso Valley Road, and 9,600 acres extending east of Havilah Canyon to the resource area boundary. Approximately 14,000 acres of public land east of Kelso Valley Road occurs in Subunit 3. Scattered throughout Walker Basin is approximately 7,500 acres of public land in Subunit 4. At the east edge of the RA, near Tehachapi, is approximately 2000 acres of public land in Subunit 5. Private land comprises the most of the Tejon Herd Unit. Approximately 3,000 acres of public land occurs within the Tejon Herd Unit. Approximately 2,500 of these acres are scheduled for exchange to support completion of the Pacific Crest Trail.

Resident deer also occur throughout the management area. No specific plans are written for these herds. For most of these deer herds, fawning habitat consists of meadows and riparian zones with dense cover. No other key habitat areas have been identified.

Pronghorn have been sighted within the Management Area near Arvin and Tehachapi. All observations were on private land.

The Monache Walker Pass National Cooperative Land and Wildlife Management Area includes approximately 27,000 acres of public land near Lake Isabella, 17,000 acres of public land in the Kelso Creek Valley and 94,800 acres of public land in the Chimney Peak and Walker Pass area.

Extensive riparian inventories have been completed for 14 watersheds in the management area. Based on these inventories at least 20 miles of riparian forest, 40 miles of riparian scrub, 1 mile of marshland and 2 miles of strandland occurs on public lands in the management area. Vegetation series represented on public land includes Alder, Cottonwood-Willow, Oak, and Willow. Approximately 38 miles of inventoried stream were in good to excellent conditions and 27 miles were in poor to fair condition.

Numerous springs occur throughout the management area. Most springs support an area of riparian vegetation around the source and many support a linear riparian zone as their outflow travels downstream.

Chapter 3
Alternatives

Rafting on the Lower Kern River

Chapter 3 - Alternatives

Alternative Formulation

Each of the five alternatives in this chapter represents a potential resource management plan. Any one could be used to guide future management of public lands and resources. The alternatives were developed for each management area by an interdisciplinary team, based on the goals, issues and criteria discussed in Chapter 1. One alternative for each management area is identified as the preferred alternative - these were developed by selecting or blending elements from the first four alternatives. The combination of alternatives from each management area together with the management area-wide and resource area-wide guidance and allocations represents the draft resource management plan.

The rationale for selecting each management area's preferred alternative is explained after presentation of all the alternatives. The rationale takes into account the specific features of each management area, and the regional and statewide perspective on public land resources. Thus, one area may have consumptive uses emphasized to accommodate resource demands while another area might be managed in a more restrictive manner. This helps to ensure that the resources will be managed to maximize all public benefits. Because of the nature of multiple use management, implementation of any alternative would result in at least a few impacts to resource values. However each alternative is crafted to maximize benefits to a blend of resources, while minimizing any negative impacts. The alternative that is selected to serve as the resource management plan will be implemented within the overall context of multiple use management, and will remain subject to all appropriate laws and policies, including the Endangered Species Act and the Archaeological Resource Protection Act.

Alternative Definitions

The detailed alternatives developed for each management area are defined as follows:

The **No Action Alternative** is defined as the continuation of present management. It is not a static condition, but a logical progression of the current level, intensity, direction and systems of management. In some cases (grazing), management would require substantial modifications in order to respond to changing resource conditions and to remain in compliance with laws and regulations.

Natural Resource Protection Emphasis Alternative. This alternative places an emphasis on intensive environmental protection, although in the interest of multiple use management, no consumptive uses would be eliminated. Allocations under this alternative would prescribe that management actions favor preservation, protection and enhancement of natural and cultural resources over actions or uses which may result in resource deterioration.

Administrative Adjustment Alternative. This alternative would place an emphasis on identifying and developing land ownership changes and actions which would provide for more effective management and public access, while protecting public resource values.

The Development Emphasis Alternative. This alternative would place a primary

emphasis on providing development opportunities, while still providing adequate protection for sensitive resources. In management units containing oil and gas reserves, their development would be a primary focus. Other mineral related activities, livestock grazing, and recreation would also be emphasized throughout the area. Grazing prescriptions reflect those identified in the previous land use plans; these allocations have been found to be inconsistent with existing policies, laws, and regulations, and are provided for the sake of comparison.

Preferred Alternative. This alternative was developed by blending elements from the other four alternatives that best reflect current Bureau policy and public concern. In some cases, new determinations were developed to bridge gaps between other alternatives.

Alternatives Considered But Not Analyzed

In addition to the five alternatives described above, several others were considered. After some deliberation, the following alternatives were rejected:

Maximum Resource Protection. Various aspects of a maximum natural resource protection scenario were considered. The termination of grazing, severely restricted vehicle use, and an end to oil & gas leasing within the habitat of threatened or endangered species were not considered to be realistic, and would be in conflict with the Bureau's multiple use mandate.

Maximum Production Enhancement. An emphasis on substantially increasing oil and gas development, livestock grazing, and OHV opportunities was considered to be in conflict with the BLM's multiple use mission, which also provides for the protection and enhancement of natural resources. Moreover, it was felt that significant development of these uses might either be in conflict with the Endangered Species Act, or would require prohibitive mitigations. Emphasis on these resources was included in Alternative 4 of this plan, to the extent deemed feasible.

Low Budget Alternative. This option was developed under the premise that all aspects of prescribed management may need to be accomplished with limited funding. It was decided that this was not a reasonable approach, as it is impossible to closely predict funding levels over the next ten to fifteen years. The resulting variation in the intensity of management could have vastly different impacts. On the one hand, natural resources could suffer grossly from inadequate protection; on the other hand, land use authorizations could plummet due to insufficient personnel to evaluate them. This approach also did not appear to meet BLM's multiple use mandate. This was dropped with the idea that it is better to propose sound resource management and work toward that end, rather than start with an inadequate plan.

Management Guidance and Decisions Common to All Alternatives

Public lands within the planning area will be managed under all applicable laws, regulations and policies. Significant guidelines were identified within the Analysis of the Management Situation (USDI, 1991), which was used to help prepare this document. Objectives, decisions, and management actions in this plan refer to public and acquired land, mineral estate, and other locations or actions where the BLM has jurisdiction. The following management guidance and decisions apply to all alternatives for all management areas.

Policy and Management Guidance

1. Sale of public land in the resource area is authorized pursuant to Section 203 of the Federal Land Policy and Management Act of 1976 and by regulations in 43 CFR 2710. Conveyance of public land for recreational and public purposes to government entities or non-profit organizations is authorized pursuant to the Act of June 14, 1926, as amended, and is commonly known as the Recreation and Public Purposes Act. Authority to

exchange public land for the benefit of the public interest is authorized pursuant to Sections 205 and 206 of the Federal Land Policy and Management Act of 1976 and by regulations at 43 CFR 2200.

2. Exchange will be the preferred method of disposal in the following order of priority:

   -Exchange for acquisitions within the resource area.

   -Exchange for acquisitions outside of the resource area but within the Bakersfield District Boundaries.

3. The priorities for disposal following exchange are Recreation and Public Purpose Act (R&PP) transfers, sale, and state in-lieu selections, in that order. All of the above shall have priority over agricultural development.

4. The following criteria shall be used to identify the availability of land for state in-lieu selections:

   -parcels with important natural vegetative communities, potential habitat for sensitive, rare, threatened, or endangered species habitat (potential habitat includes disturbed lands with the potential to be adequately reclaimed) are ineligible;

   -lands that have received any formal special designation, such as NCLWMAs and ACECs, as well as threatened and endangered species conservation areas, are excluded from consideration.

5. Decisions on land tenure adjustment will address concerns of the affected counties. Disposal of parcels with existing land use authorizations shall be subject to valid existing rights.

6. Lands within wilderness areas and wilderness study areas (WSAs) are not available for disposal. Lands within ACECs are unavailable for transfer to other agencies. All other lands are available for exchange according to the constraints identified in each alternative.

7. Specific parcels identified for possible disposal (including exchange) will be evaluated for the presence of significant resource values prior to making a decision to dispose or retain the parcel. Resources to be evaluated shall include minerals, recreation, cultural and paleontological resources, wildlife habitat, important natural communities, and threatened, endangered and other sensitive species.

8. Parcels identified as available for potential disposal will only be exchanged for parcels with like resources of equal or greater value if any of the following resource values are confirmed to occur on the parcels.

   -Important natural communities, including but not limited to examples of: blue oak and valley oak woodlands, riparian areas, native grasslands, vernal pools, or Joshua tree woodland.

   -Important habitat for listed or candidate plant or animal species.

9. Parcels identified as available for potential disposal will be retained if hazardous or toxic materials that would pose liability problems are found on the parcels.

10. Recreation and Public Purposes Act (R&PP) leases and conveyances must conform to plan objectives and land use allocations. All ACECs shall be unavailable for R&PP Act leases and conveyances.

11. In conformance with the spirit of the Food Security Act of 1985 and the Conservation Resource Program, the following criteria shall be used to determine the suitability of land for agricultural entry and development (other than grazing

permits/leases administered under the Taylor Grazing Act):

-at least 75% of the soils must be rated in Land Use Capability Classes I through IV;

-the site may not contain important cultural or historic values;

-parcels with important natural vegetative communities, potential habitat for sensitive, rare, threatened, or endangered species habitat (potential habitat includes disturbed lands with the potential to be adequately reclaimed) are ineligible;

-land that has been identified for community needs such as gravel pits, etc. is unavailable;

-parcels must be determined to be of little value for wildlife;

-lands that have received any formal special designation, such as NCLWMAs and ACECs, as well as threatened and endangered species conservation areas, are excluded from consideration; and

-development may not constrain proper administration of adjacent public land or minerals.

12. Color-of-Title Act sales are special cases which need not be identified in a resource management plan prior to sale. Since it is normally impossible to predict their occurrence, they will be considered on a case-by-case basis under the regulations at 43 CFR 2540.

13. Parcels contiguous to National Forests and identified suitable for disposal are also considered suitable for jurisdictional exchange of lands between the Forest Service and BLM. All parcels of public land that are adjacent to National Forests are available for management by the USFS under Cooperative Management Agreements.

14. All lands in the resource area are available for cooperative management agreements with local governments and/or private organizations, provided that proposed management conforms to plan objectives and land use allocations. BLM shall encourage and participate in regional natural resource planning efforts in cooperation with other landowners. Cooperative management will comply with the direction established in this plan.

15. Review of withdrawals and classifications will be completed according to the statewide schedule. Continuation, modification, or termination of withdrawals and classifications will be recommended on a case-by-case basis. New withdrawals needed to meet management objectives are specifically identified in management area alternatives.

16. Resolution of unauthorized use shall be pursued on a case-by-case basis following discovery of suspected trespass. Resolution may include termination of use and payment of damages, including reclamation of disturbed land, if needed. In some cases, conflicts may be resolved through the granting of rights-of-way, permits, or through land disposal.

17. BLM shall continue to give priority to the designation and protection of ACECs through cooperation with other agencies and groups, including the California Interagency Natural Areas Coordinating Committee.

18. The detailed allocations for ACECs provided in this plan reduce the need for ACEC activity plans. ACEC plans may be prepared if it is determined that additional direction is necessary, but they are not required. Until such time as activity plans are written, management direction for special areas will be provided by the decisions made in this plan.

19. BLM shall not jeopardize the continued existence of any plant or animal that is listed as threatened or endangered by the Federal or State governments, or is either proposed for listing or is a candidate for listing by the Federal government. The Bureau shall actively promote species recovery, and shall work to continue to improve the status of candidate and sensitive species, in order to eliminate the need to officially list these species.

20. Control of noxious plant species will be sought with an integrated approach and within the constraints of this plan.

21. Animal Damage Control (ADC) shall be restricted to those public lands where demonstrated damage is occurring. The ADC MOU shall be reviewed annually for applicability. No area-wide ADC plans will be approved since history does not identify widespread need for ADC.

22. Management actions shall be conducted in a manner which conforms to the objectives and strategies of the local air quality management districts and the local air pollution control districts for attainment of Federal and State air quality standards.

23. The approval of all actions that require permits from the local APCDs will include measures necessary for the phased reduction of pollutants in accordance with the local Air Quality Basin Attainment Plan. This will include authorizations for construction, road maintenance and improvement, oil development, mineral development, and OHV authorizations.

24. Management actions shall be conducted in a manner which conforms to State Water Quality Control Board objectives which have been developed as required by the 1972 Amendments to the Federal Water Pollution Control Act. Best management control practices (BMPs) will be developed as needed under the guidance of the California BLM 208 Water Quality Management Plan.

25. The Bureau of Land Management reserves the right of first priority to all water sources that occur on public lands. This reservation is for use as wildlife water or for water developments that remain under title to the United States. Applications that for water will be approved only if the above needs have been met.

26. Cultural resources will be inventoried and evaluated before initiation of any BLM undertakings which may affect the resource. Efforts to avoid adverse effects to cultural resources will be implemented. Where this is not possible, consultation with the State Historic Preservation Officer (SHPO) and the Advisory Council of Historic Preservation will be conducted to develop acceptable mitigative measures in accordance with the Programmatic Agreement (June 3, 1991). In addition, the views of Native Americans and interested persons will be solicited when a BLM undertaking may affect a cultural site or area of religious or cultural importance to Native Americans. Coordination will be in accordance with the Memorandum of Understanding between the BLM and the Native American Heritage Commission.

27. Protection of paleontological resources will include the assessment of the threat to these resources, along with the implementation of measures designed to mitigate these impacts.

28. Off-lease and third party activities associated with oil and gas production may be authorized by means of an appropriate land use authorization, following NEPA documentation.

29. The EIS for this RMP serves as the NEPA document for any impacts associated with the development of oil and gas leases that occurred prior to 1991. Proposals for future development activities will require additional NEPA analysis.

30. Renewal of land use authorizations will include additional mitigation, as directed by this RMP/EIS, for the protection and management of public resources.

31. Lands within wilderness study areas are not available for mineral leasing as long as they are under wilderness review.

32. Applications for the extraction of solid leasable minerals and materials may be approved in the absence of resource conflicts. Approval is discretionary, but authorizations must be in conformance with the intent and direction of the RMP. Approval of applications is contingent upon adequate NEPA analysis, which may require delays in order to allow for inventories of sensitive species in the proper season. The application of major constraints to a permit or lease for resources other than oil and gas, in those areas where they are required by this plan, may include but is not limited to: movement of the proposed activity to avoid plant and animal species on the State or Federal threatened or endangered species lists; movement to avoid species that are proposed or are candidates for Federal listing; timing delays or restrictions to accommodate raptor nesting requirements, the needs of listed species, or the transplanting of sensitive plant species; and off-site mitigation for or compensation of impacts to listed species.

33. The development of Federal minerals on lands administered by Federal agencies other than the BLM shall be subject to the constraints identified by those agencies in addition to those identified by the Bureau. All lands managed by the Department of Defense, Bureau of Reclamation, Bureau of Indian Affairs, Army Corps of Engineers, Fish and Wildlife Service, Park Service and other Federal agencies excluding the U. S. Forest Service are withdrawn from the mining laws. National Parks are also closed to mineral leasing and sale. These lands may be open to mineral leasing or sale at the discretion of those agencies. On lands administered by Federal agencies other than the Forest Service, environmental assessments or environmental impact statements will be prepared by the BLM prior to mineral leasing, sale or development; the Forest Service will take the lead on lands that it administers. Any actions approved by the BLM will be subject to the land use plan (either this RMP or the appropriate Forest Service plan) and subsequent NEPA record of decision; Conditions of Approval will incorporate the necessary safeguards.

34. The development of private minerals underlying Federal surface may occur subject to the same requirements applied toward Federal mineral estate. Actions will remain subject to all applicable laws and regulations, as well as the appropriate mitigative measures (Appendix F), Standard Operating Procedures (Appendix I), and direction laid out within this plan.

35. The leasing of Federal minerals on military bases may only occur with the consent of the base commander. Because of this limitation, some lands identified as being available for leasing in this plan may never be leased. For the sake of analysis however, conditions on oil and gas leasing identified by the military are considered minor constraints.

36. The processing and approval of oil and gas Applications for Permit to Drill (APDs) shall be completed as expeditiously as possible should drainage of oil or gas off Federal mineral estate be identified. New wells necessary to offset drainage of oil from public lands shall be located according to geologic and drainage needs only after meeting the requirements this plan establishes for the protection of threatened and endangered species and cultural resources.

37. The maintenance of existing facilities, including buildings, trails, roads, and recreational sites, will be maintained and brought up to current Bureau and State standards before new facilities are

developed. Reconstruction, modification, or new construction will be entered into the Bureau's Maintenance Management System upon completion to ensure adequate maintenance funding levels.

38. Public lands will be managed to prevent, reduce, manage, and clean up the incidence of hazardous materials. Those sites not cleaned up will be managed to minimize risk to human safety and the environment.

39. Sites that pose a risk to public health or safety shall be identified and have corrective measures taken. Where possible, public access to sites posing a threat to public safety will be closed pending corrective action.

40. The authorized officer may approve the use of motor vehicles on any public lands in the resource area if they are needed to respond to an emergency situation, including the discovery of hazardous materials, involving the health and safety of the public.

41. Resource protection will be emphasized over providing public access. Public access is defined as a corridor or route through which all members of the public may legally travel when engaging in casual use of public lands, without specific authorization from the BLM or other landowners. Public access acquisition may be delayed indefinitely should a site have significant biological or cultural resources that could be damaged by increased use. Public access may be provided only after appropriate mitigative measures are implemented. Should a site be impacted following acquisition of access, access may be controlled by a gate or other regulating mechanism.

42. BLM will avoid determinations of the existence of rights-of-way for public roads under Revised Statute 2477. Roads which may qualify for rights-of-way under R.S. 2477 will be considered for right-of-way grants under Title V of FLPMA, in order to more accurately define the responsibilities between BLM and the grantee, and for more accurate record-keeping purposes.

Resource Management Plan Alternative Components

There are three sets of information commonly identified in RMPs: objectives, land use allocations, and management actions. In this plan, standard operating procedures have also been identified in order to provide another level of detail. Decisions that apply to the entire resource area are grouped together, as are the prescriptions that apply to all alternatives within a given management area. These determinations are described in greater detail below:

Resource Management Objectives are major "themes" or plan objectives which guide management. They are necessary to develop land use allocations and to address unforeseen proposals.

Land Use Allocations are the general quantifications of allowable land and resource uses, sometimes referred to as decisions. This is where allowed, restricted or excluded uses are identified. Each alternative includes guidelines for Areas of Critical Environmental Concern (ACECs). These allocations complement those under resource headings which apply to the entire management area.

Management Actions are not land use decisions. They are general implementation actions which:

1. Ensure planning objectives are met and provide the mechanism for achieving land use allocations.

2. Ensure necessary refinements to the plan are being made.

3. Guide BLM budgeting and programming. Management actions alert the public to specific follow-up action necessary to implement the plan, to highlight the costs,

complexity, time constraints, and other requirements of realizing the plan objectives. There is no intent to provide a comprehensive list of management actions at this time; actions and schedules will be added, deleted, or modified during the useful life of this plan.

Alternatives were developed based on the resource values found in each management area, providing management options which address the identified issues. Some resource and land use allocations, including those which are not related to the issues or critical management concerns, are identified features common to all the alternatives. These are listed below.

Resource Area Guidance and Decisions Common to All Alternatives

The following determinations apply to the entire resource area. The objectives reflect policy, regulation, and law. The allocations identify how we hope to reach those objectives, and the management actions, although not an all-inclusive list, describe some of the steps needed to implement the allocations.

Resource Area-Wide Objectives

1. Manage public lands and resources under the concept of multiple use to attain the optimum combination of uses.

2. Manage public lands in a manner which recognizes the nation's need for domestic sources of energy, minerals, and livestock products from the public lands and the importance of these industries to local and regional economies.

3. Provide special management emphasis in areas with unique features or special management needs.

4. Manage for diverse recreation opportunities for the increasing number of visitors to public lands.

5. Improve the management efficiency of Federal lands, improve resource protection, and provide lands for public and private uses through land tenure adjustment.

6. Accommodate requests for land use authorizations while minimizing residual impacts to sensitive resources.

7. Manage public lands to promote recovery of Threatened and Endangered (T&E) species and their habitats, and to prevent the listing of additional species, such as Federal candidates, BLM sensitive species, and locally rare species.

8. Manage public lands to meet objectives for priority species and habitats, as detailed in State Fish & Game plans and U.S. Fish & Wildlife Service plans.

9. Manage public land with an emphasis on maintaining or enhancing ecosystems, to ensure self-sustaining populations and a natural abundance and diversity of wildlife, fish, plants, and their habitats.

10. Manage public lands to enhance, protect, and minimize impacts to sensitive resources, including: cultural resources, paleontological resources; and air and water quality.

11. Protect watershed, structures, and sensitive resources from wildfire and unauthorized uses, through fire prevention, suppression and law enforcement.

12. Promote public awareness on BLM's mission, environmental issues, and proper use of public lands.

13. Manage mineral resources in order to contribute to the satisfaction of national and local needs, and also to provide for economically and environmentally sound exploration, extraction, and reclamation.

14. Manage public lands to comply with State and Federal regulations regarding the prevention, reduction, and clean-up of hazardous materials.

15. Promote health and safety on public land through abatement of human-made hazards.

16. Manage woodlands to minimize impacts to sensitive resources. Specifically, protect and enhance Piute Cypress, Sequoia, Oak, Pacific Yew, Sugar Pine, Joshua Trees, and riparian woodland communities. Manage all woodland resources to minimize forest diseases, pest damage, and wildfire.

Resource Area-Wide Allocations

1. Unless otherwise identified, all public lands shall be retained in Federal ownership.

2. Mineral estate within all areas having a high potential for oil, gas, geothermal, or other mineral resources shall be retained when surface ownership is exchanged or sold, or if the surface owner applies to acquire the reserved mineral estate on existing split estate lands. Exceptions may be made on a case-by-case basis only where there is a clear advantage to the United States government. All other mineral estate is available for disposal. Section 209 conveyances shall be subject to NEPA analysis.

3. Withdrawals of land under Public Land Order 2594, designating National Cooperative Land and Wildlife Management Areas (NCLWMAs) for cooperative wildlife habitat management, will be retained except where specified below. These areas will be managed cooperatively with CDF&G to benefit wildlife resources and recreational opportunities. Public land in T.32S., R.23E., Sec. 28, MDB&M, and T.11N, R.24W., Sec. 9, SBB&M in the Temblor NCLWMA, may have existing withdrawals lifted and may be considered for exchange with lands within the CPNA. Isolated tracts within NCLWMAs identified in Appendix C-4 may be exchanged for other parcels within NCLWMAs in order to improve management of wildlife or recreational resources.

4. The decisions within this Resource Management Plan replace: all existing multiple-use classifications (C&MU) except those at Keyesville; small tract classifications; public sale classifications; and any other disposal classifications covering public land in the planning area.

5. Newly acquired land, as well as lands that have had mineral withdrawals revoked or are returned to BLM jurisdiction or management authority, shall be managed according to the objectives for the adjacent or closest parcels of public land. (The exception to this is land acquired as compensation - these lands have specific objectives identified for them.) Some or all of these lands (other than those purchased using the Land and Water Conservation Fund or as compensation) may be considered suitable for disposal. Acquired lands will have resource inventories conducted prior to the approval of any activities. All land use authorizations shall be subject to the Endangered Species Act. Should any Wilderness Study Area (WSA) inholdings be acquired, they shall be managed in such a way so as to not impair their suitability for preservation as wilderness.

6. Lands where BLM manages the mineral estate only (split estate lands) will be available for exchange through Sec. 206 of FLPMA or for sale through Sec. 209 of FLPMA, on a case-by-case basis.

7. Any land acquisitions that lie within the boundaries of an ACEC shall become a part of that ACEC. All public lands within ACECs are unavailable for disposal unless otherwise indicated.

8. All rocks, islands, pinnacles, and reefs lying above mean high tide off the California Coast in Ventura, Santa Barbara, and San Luis Obispo Counties, that were included within any reservation as of April 19, 1983, shall become a part of the California Rocks and Islands ACEC upon the lifting of said reservation. The

exception to this is Lion Rock, which shall become a part of the Point Sal ACEC.

9. All parcels identified for possible disposal are right-of-way avoidance areas, if granting a right-of-way would adversely affect parcel marketability.

10. All public lands are open to entry under the Mining Law of 1872 unless they are unavailable due to withdrawals. Unless otherwise specified, lands are open to oil and gas leasing subject to standard terms and conditions.

11. The casual collection of rocks, mineral specimens, common invertebrate fossils, semiprecious gemstones, and petrified wood is permitted unless otherwise noted in the document. Casual collection may occur only for personal use; any collection for sale or barter requires a permit. The collection of any vertebrate fossils also requires a permit.

12. The cutting of live trees will be permitted only under special conditions which meet resource management objectives. Control shall be maintained through the use of a special cutting permit with site specific stipulations.

13. The collection of dead and down wood is not allowed, within developed recreation sites or areas where collection is posted and prohibited. In other areas, no permit shall be necessary to collect dead and down wood that is less than 6" in diameter, for use in campfires on public land. Collection of live plants for firewood is not allowed. Collection of standing dead plants for firewood is not allowed without a permit. Collection of any other vegetative materials, including pinyon nuts, may be subject to a permit.

14. Collecting any sensitive species is prohibited, except when explicitly authorized for scientific purposes by the USF&WS or CDF&G.

15. Riparian and wetland areas shall be managed to protect, enhance, and restore riparian values and to minimize erosion.

16. The use of pesticides may be allowed with adherence to any applicable biological opinion issued by the USF&WS for those parcels within T&E habitat. At least 1/2 mile shall be maintained between spray areas and wildlife guzzlers or sensitive plant habitat. Applications shall not be allowed from April through June in upland game habitat.

17. 484,536 acres of public land are available for livestock grazing. Of this figure, 456,405 acres lie within existing allotments, and 28,131 acres are currently unalloted. The remainder of the Resource Area, approximately 85,464 acres, has been classified as unavailable for livestock grazing, including 25,205 acres which are designated as closed. Authorizations will only be made on lands available for grazing. The following criteria are used to identify lands unavailable for grazing:

    a) Unalloted lands which have known sensitive resource concerns are considered closed to new grazing authorizations.

    b) Unalloted lands which are inaccessible to livestock due to heavy brush, steep slopes or are too far from water sources are considered unsuitable for new grazing authorizations.

18. Grazing authorizations shall be temporarily reduced or suspended during periods of drought as defined in the glossary, and may be temporarily increased during periods of unusually high forage production. Guidelines are included in Appendix D-5.

19. Mulch and utilization levels on grazing allotments may be modified up or down, or seasonal restrictions may be modified to meet RMP objectives, if monitoring

shows that the initial prescription does not meet RMP objectives.

20. New livestock waters and salt licks shall be placed outside of sensitive areas, such as riparian zones, known populations of sensitive, threatened, or endangered plants or animals, and cultural sites. The locations of existing range improvements shall be subject to relocation if monitoring data or new information regarding the occurrence of sensitive resources indicates the need.

21. Public lands will be managed to provide opportunities for dispersed recreation, where those activities do not impact sensitive resources, authorized uses, or adjacent property.

22. Management actions shall conform to Visual Resource Management (VRM) classifications (see Appendix H-2 for explanation). Wild, scenic, and recreational rivers, as well as wilderness study areas recommended as suitable for inclusion into the wilderness system, shall be managed under Class II VRM guidelines. ACEC VRM management will conform to the level of protection specified in the specific ACEC allocation. Land under wilderness review will be managed under Clean Air Act Class II guidelines.

23. Public land within 1/4 mile of normal high water will be managed to protect the values which led to the determination of eligibility for designation as a Wild, Scenic or Recreational River. Appendix H-3 provides non-eligibility and eligibility determinations for potential additions to the Wild and Scenic River System as well as classification of eligible segments.

24. Wilderness Study Areas (WSAs) will be managed under either the BLM's Interim Management Policy unless Congress releases these areas from further wilderness consideration. Management actions would then be those outlined in the WSA Final Environmental Impact Statement (FEIS) under "Proposed Action (No Wilderness/No Action)", except where altered by this RMP. For example, if public land within an area now designated as a WSA is released from WSA status and not designated as a wilderness area by Congress, and if it falls within a proposed ACEC, then its resource management actions will be those as outlined in the ACEC management plan. Where management is not identified under the proposed action of the WSA FEIS or elsewhere in this plan, these lands will be managed under the guidelines for nearby lands with similar resource values.

    Wilderness values found on acquired lands shall be appropriately evaluated under the principles established in Section 202 of FLPMA. The criteria followed will be those established by Congress in the Wilderness Act and will include inventory, study, and report phases. Reconsideration of WSAs previously established through Section 603 of FLPMA will only take place when the wilderness values of parcels acquired may complement those values in the existing WSA.

25. In areas open to dispersed or developed camping on public lands, camping shall be limited to 14 days per person in any 30 day period. Time spent on private, state, or any land managed by other Federal agencies, as well as public land outside this Resource Area, does not count toward the 14 day limit. Specific ACECs, SRMAs and other public lands may have alternative camping restrictions which shall be enforced. Dispersed camping is not permitted within 100 feet of any freshwater sources.

26. Developed recreational sites, visitor facilities, livestock water improvements, research areas and all authorized facilities belonging to lessees or permittees of the Federal government, as well as lands within 1/2 mile of buildings and residences on private lands, shall be

closed to shooting unless specifically authorized.

27. All travel off designated routes is limited to pedestrian and equestrian use only, unless otherwise specified.

28. Public water reserves will be managed for the benefit of riparian resources.

29. Activities on public land, including construction, road maintenance and improvement, oil development, mineral development, OHV (off highway vehicle) events, pipeline corridors, and powerline corridors must comply with local Air Pollution Control District requirements. Proof of compliance may be required in order to ensure that the phased reduction of pollutants is in accordance with the attainment plans for the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD), and the Ventura County, Santa Barbara County, San Luis Obispo County, and the South Coast APCDs.

    With respect to the San Joaquin Valley, the Bureau will institute control measures according to the SJVUAPCD PM_{10} plan on Federal lands. PM_{10} emissions may be entrained in the ambient air as a result of activities/sources such as: unpaved roads, construction, demolition, handling and storage of bulk materials, landfill disposal sites, OHV open areas, staging areas etc. The Bureau will undertake reasonable dust control measures to reduce PM_{10} emissions. Measures will comply with the California Clean Water Act and other applicable laws.

    PM_{10} emissions entrained in the ambient air, as a result of emission generated from paved roads on public land in the San Joaquin Air Basin, will have an overall average control efficiency which demonstrates an overall average 5% reduction from uncontrolled PM_{10} emissions. In addition, control measures will be instituted to address mud/dirt carry-out onto paved road surfaces.

Resource Area-Wide Management Actions

1. Acquisition of public access to currently inaccessible areas of significant public interest will be on a case-by-case basis.

2. Public lands will be inventoried for hazardous materials. Sites will be prioritized as funding allows.

3. A plan to address and coordinate area-wide and project specific signing will be developed, as will written and visual material to enhance public use and management of affected lands.

4. A thorough road inventory and transportation plan for the resource area will be completed and maintained.

5. Coordinate with the state and counties to identify roads which need FLPMA authorizations.

6. The BLM will cooperate with other Federal, state, and local agencies to eradicate marijuana from public lands.

7. Cadastral survey of parcels will be accomplished to resolve identified trespass and assist in land tenure adjustment.

8. Mineral resource assessments will be prepared to expedite land exchanges.

9. MOUs with county governments may be developed to facilitate implementation of state and bureau mine reclamation standards.

10. The need for an air quality management plan will be investigated. If one is not developed, measures addressing the reduction of PM_{10} generation will be incorporated into other activity plans as new plans are developed. Topics may include vehicle speed reduction, limiting vehicle numbers, limiting the number or length of roads, OHV use, seasonal restrictions, and new surface disturbance.

11. Public health and safety hazards will be inventoried and preventative or corrective actions taken as necessary.

12. Existing public water reserves under the Executive Order of April 17, 1926 (PWR 107's) will be reviewed under current policy which requires use for human or livestock consumption.

13. Routes of travel will be designated, identified on the ground, and signed.

Coast Management Area

Guidance and Decisions Common to All Alternatives

The following land use allocations and management actions apply to all alternatives within the Coast Management Area.

Land Use Allocations Common to All Alternatives

General

-No construction activities shall be permitted on soils with high erosion hazard ratings or where slopes exceed 70%. Site specific conditions may cause restrictions to be placed on activities in fragile areas having lesser slopes. This does not apply to projects designated to improve watershed condition.

-Manage public land near the Rinconada Mine in cooperation with the USFS. Management efforts shall concentrate on the protection of the historic resources at the mine and the *Arctostaphylos luciana*, a sensitive plant species, while providing for continued use and maintenance of the trailhead and parking area. Expansion of these facilities is allowable, providing that impacts to these resources can be avoided or adequately mitigated.

Fire Management

-All wildfires will be suppressed. Intensive suppression techniques shall be used on all public land in order to prevent the loss of life and property. The fact that public land in this area consists of small scattered tracts makes this type of management a necessity, as less than full suppression could result in fires spreading to private land. The goal on these lands is to keep 90% of the fires to 10 acres or less.

-All lands outside of the Point Sal ACEC shall be managed as fire use areas. In such areas prescribed fire may be used to improve wildlife and plant habitat, site productivity, watershed protection, and to reduce wildfire fuel loads. All prescribed burns shall be preceded by the preparation of an interdisciplinary burn plan and NEPA analysis.

-Fire fuels management areas include all lands outside of Point Sal and designated wilderness areas. If necessary, removal of inflammable vegetation may be accomplished through mechanical means, prescribed burning, or a combination of the two, utilizing the NEPA process to select the best method.

-No surface disturbing fire suppression activities, including off-road vehicle use, shall be employed at Point Sal in order to protect sensitive resources. Surface disturbing activities within wilderness areas are limited to those necessary for human safety. Blading by bulldozers or similar heavy equipment shall be allowed in culturally and biologically sensitive areas, including ACECs, only when absolutely necessary to protect structures, the public, or sensitive resources. Water or retardant drops shall not be used near pictographs.

Grazing

-569 acres of currently unalloted lands which fall within existing allotment boundaries will be administratively added to those allotments, in order to complete proper management units.

Lands

-Land that is of significant public interest but is inaccessible, will have public access acquired on a case-by-case basis. Access may be controlled if limits are needed to protect sensitive resources.

-Administrative access shall continue to be handled elsewhere on a case-by-case basis with the use of reciprocal ROWs and MOUs.

Minerals, Oil, & Gas

-Lands administered by the Department of Defense, comprising approximately 58,400 acres of mineral estate owned by the United States, are open to oil and gas leasing with stipulations designed to protect the military mission of the lands involved. Navy lands

including San Nicholas Island, Port Hueneme, and Point Mugu comprising 21,000 acres are open to oil and gas leasing subject to minor constraints; development may only occur at the discretion of the Navy. Oil and gas leasing on about 7,000 acres of land within threatened and endangered species habitat on Vandenberg Air Force Base will be subject to major constraints under all alternatives. The remaining 8,400 acres of Federal mineral estate at Vandenberg will be available under minor constraints.

-The California Rocks and Islands Wildlife Sanctuary ACEC, administered by the Bureau and comprising an unknown acreage, is withdrawn from the mining laws and is closed to all forms of mineral leasing and sale.

-The Machesna and Santa Lucia Wilderness Areas, comprising a total of 1855 acres, are closed to mineral location, lease and sale.

-The United States has reserved the mineral estate on approximately 1,820 acres in portions of the Montaña de Oro State Park, Lopez Lake County Recreation Area, and Hungry Valley State OHV Park, which were acquired from the Bureau of Land Management under the authority of the Recreation and Public Purposes Act. These lands are not available under the mining laws, but are available for the sale of mineral materials and mineral leasing with the consent of the surface managing agency, under major constraints.

Recreation

-Management of the Machesna and St. Lucia Wilderness Areas will continue to be in accordance with wilderness policy.

Management Actions Common to All Alternatives

General

-For any development projects on public land within the Coastal Zone, the applicant will be notified by the Bureau of his/her responsibility for consistency certification with the Coastal Commission as per Section 307 (c)(3)(A) of the Coastal Zone Management Act of 1972.

-For development projects within its jurisdiction, the Coastal Commission will receive a copy of the consistency certification notification sent to the applicant by the Bureau. The Commission will also receive a copy of the Decision Record for each of the above said projects.

-Develop MOU with the USFS for management of public land near Riconada Mine.

Lands

Pedestrian access for the public and BLM administrative vehicular access will be acquired to Point Sal. Administrative access will also be acquired to Tierra Redonda Mountain. Administrative and non-motorized public access to Cypress Mountain will be obtained.

-Acquire privately-owned inholding of 120 acres (S½NE¼, E½, SE¼, Section 7, T. 31 S., R. 15 E., MDB&M) within the St. Lucia Wilderness Area to provide continuity for wilderness management.

Minerals, Oil, & Gas

-Develop MOU with military bases for leasing of oil and gas.

-Develop and implement a policy for testing and abandonment of shut-in wells.

-Investigate MOU with CDOG to ensure that environmental clearances are conducted prior to lease cleanup projects.

-Coordinate with oil and gas lessees to identify and eliminate extraneous roads, or identify those roads requiring FLPMA authorizations.

Recreation

-Study the suitability of the BLM Salinas River corridor for WSR status.

Alternative 1 - No Action (Continuation of Present Management)

Objectives

1. Improve management effectiveness while retaining resource values and areas of high mineral potential, through the disposal of lands in this management area in exchange for consolidation of land throughout the Resource Area.

2. Continue oil and gas leasing and allow exploration and production, while providing for appropriate levels of protection for sensitive resources.

3. Provide opportunities for dispersed recreational uses that are compatible with natural resource protection.

4. Provide for livestock grazing while minimizing residual impacts to sensitive resources.

Land Use Allocations

ACECs

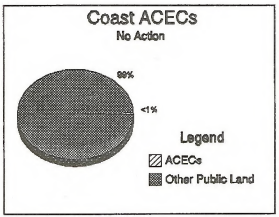


Figure 9

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 8. Necessary support actions are shown in Appendix A-3.

Point Sal ACEC

-The Point Sal ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompassed approximately 50 acres of public land.

The area was resurveyed by the Bureau of Land Management in 1988. With the identification of additional public lands, the size of the ACEC increased to 77 acres. Lion Rock was not part of the ACEC originally, but with adoption of this plan it will be added.

Point Sal is to be managed for the protection of highly sensitive and unique resources, including: cultural resources; threatened, endangered, and sensitive plants and wildlife; marine invertebrates and mammals; the ophiolite sequence; fragile soils; and scenic values.

California Rocks & Islands ACEC

-The California Rocks and Islands Wildlife Sanctuary ACEC consists of a multitude of unsurveyed rocks, reefs, and islands along the California coast. The exact size of the ACEC is unknown; it includes all offshore public land above mean high tide. The entire ACEC extends from the Mexican border to Oregon, but this land use plan only affects those portions of the ACEC in Ventura, Santa Barbara, and San Luis Obispo Counties. The ACEC is withdrawn from settlement, sale, location, or entry under the general land laws governing land use and disposal, including the mining laws, and from leasing under the mineral leasing laws. The ACEC will be managed to reinforce or ensure the protection of wildlife, including populations of marine mammals and large populations of seabirds.

Grazing

-Livestock grazing shall be authorized on 3,953 acres of public land in 7 allotments at levels shown in Appendix D-1. The minimum residual mulch level in potential habitat for species listed as threatened or endangered by the USF&WS shall be 500 pounds per acre.

ACEC	Terms and Conditions							
	1	2	3	4	5	6	7	8
Pt. Sal	X	X		X	X	X	X	
CA Rocks & Islands			X			X	X	X

ACEC Terms and Conditions

1. The ACEC shall be managed under an NSO stipulation for oil, gas, and geothermal leasing.
2. The entire ACEC shall be proposed for withdrawal from the general mining laws and public land laws governing land use and disposal.
3. The existing closures to mineral leasing, sale, and location and the withdrawal from the land laws governing land use and disposal shall be retained.
4. The ACEC is closed to livestock grazing.
5. The ACEC is closed to OHV use. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
6. These lands shall be managed under Class II VRM guidelines.
7. These lands shall be retained in public ownership.
8. The Bureau shall retain the existing MOU with CDF&G, which gives them management responsibility for the ACEC. This agreement provides for the protection of the wildlife resource in general by limiting human activities during the nesting season, prohibiting the removal of products, and by providing for periodic biological surveys.

Table 8

All other allotments shall be managed at the mulch levels shown in Appendix D-1.

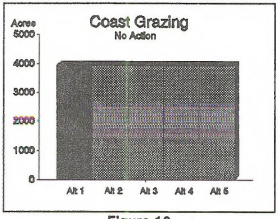


Figure 10

Utilization of perennials within habitat of listed species shall be allowed up to 50% of the current annual year's growth. Future adjustments shall be based on monitoring data or new information regarding the occurrence of threatened or endangered species.

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 14,000 acres of mostly small and isolated parcels shall remain available for disposal, (Appendix C-4). Emphasis shall be placed on exchange, with subsequent acquisition to be targeted for the Carrizo Plain and private inholdings within wilderness areas.

-Utility corridors in the management area are not designated. New rights-of-way will be authorized on a case-by-case basis following NEPA analysis. Special stipulations will be applied in those areas where threatened and endangered species, cultural resources, or other resource values may be impacted. Previously disturbed areas and existing routes are to be used whenever possible.

-Proposals for wind energy development will be considered on a case-by-case basis.

-Existing, designated communication sites are listed in Appendix C-2. Authorization for new sites will be considered on a case-by-case basis.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide and management area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, exclusive of lands managed by other Federal agencies.

Leasable Minerals (including Oil & Gas)

-Approximately 55,000 acres of Federal mineral estate (77% of the total) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on about 14,000 acres (20%) at Point Sal, within State and County parks which were established under the Recreational and Public Purposes Act, and within threatened and endangered species habitat.

-Nearly 2,000 acres (3%) of Federal mineral estate within BLM Wilderness areas are closed to leasing of oil, gas and geothermal resources.

-About 60,000 acres of Federal mineral estate (85%) are open to development of other leasable minerals, while 7,000 acres (10%) within threatened and endangered species habitat are subject to major constraints. About 4,000 acres (5%), of Federal mineral estate are proposed for closure within certain ACECs, or are presently closed within BLM Wilderness Areas.

-Mineral leasing at Camp Roberts on 22,000 acres of land within threatened and endangered species habitat will be subject to major constraints. The status of leasing on other military bases in the management area is discussed under the section "Land Use Allocations Common to All Alternatives" for the Coast Management Area.

Mineral Materials

-Approximately 61,000 acres of Federal mineral estate (85%) are open to development of mineral materials. About 7,000 acres (10%) within threatened and endangered species habitat are subject to major constraints. About 4,000 acres (5%) of Federal mineral estate are proposed for closure within certain ACECs, or are presently closed within BLM Wilderness Areas and State and County parks which were established under the Recreational and Public Purposes Act.

Locatable Minerals

-68,000 acres of Federal mineral estate (94%) are open to development of other locatable minerals. About 4,000 acres (6%), of Federal mineral estate are proposed for withdrawal within certain ACECs, or are presently withdrawn within BLM Wilderness Areas and State and County parks which were established under the Recreational and Public Purposes Act.

Recreation

-Public lands are open to dispersed recreation use. Other than acquisition of public access to selected parcels, development of recreational facilities is not provided.

-Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans,

subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-Pt. Sal ACEC and the Machesna and St. Lucia Wilderness Areas are designated as "closed" to OHVs.

Management Actions

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine the effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Alternative 2 - Natural Resource Protection Emphasis

Objectives

1. Enhance resource management through land acquisition, exchange, or disposal. Lands with high resource values may be obtained either through purchase, or through the exchange of parcels with low resource values.

2. Limit oil and gas leasing, exploration, and production to areas where residual impacts to sensitive resources are minimal.

3. Provide opportunities for recreational uses that have minimal impacts to natural resources.

4. Emphasize protection and recovery of sensitive resources while providing for livestock grazing only where residual impacts to sensitive resources are minimal.

Land Use Allocations

ACECs

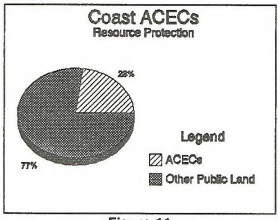


Figure 11

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 9a, 9b. Appendix A-3 also shows necessary support actions.

Point Sal ACEC

-The Point Sal ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompassed approximately 50 acres of public land.

The area was resurveyed by the Bureau of Land Management in 1988. With the identification of additional public lands, the size of the ACEC increased to 77 acres. Lion Rock was not part of the ACEC originally, but with adoption of this plan it will be added.

Pt. Sal is to be managed for the protection of highly sensitive and unique resources, including: cultural resources; threatened, endangered, and sensitive plants and wildlife; marine invertebrates and mammals; the ophiolite sequence; fragile soils; and scenic values.

California Rocks and Islands Wildlife ACEC

-The California Rocks and Islands Wildlife Sanctuary ACEC consists of a multitude of unsurveyed rocks, reefs, and islands along the California coast. The exact size of the ACEC is unknown, but it includes all offshore public land above mean high tide. The entire ACEC extends from the Mexican border to Oregon, but this land use plan only affects those portions of the ACEC in Ventura, Santa Barbara, and San Luis Obispo Counties. The ACEC is withdrawn from settlement, sale, location, or entry, under the general land laws governing land use and disposal, including the mining laws, and from leasing under the mineral leasing laws. The ACEC will be managed to reinforce or ensure the protection of wildlife, including populations of marine mammals and large populations of seabirds.

Salinas River ACEC

-Designate 1,000 acres of public land and 840 acres of reserved mineral estate as the Salinas River ACEC. The Salinas River ACEC shall be managed to protect biodiversity and the exemplary riparian area, which is used by beavers and waterfowl.

Tierra Redonda ACEC

-Designate Tierra Redonda Mountain as an ACEC encompassing 320 acres of public land and 80 acres of reserved mineral estate. The Tierra Redonda Mountain ACEC shall be managed to protect the paleontological resources, the unique sand dune formation, limestone streamside habitat, coast live oak woodland, biodiversity, several rare and endemic plant taxa including *Lasthenia leptalea*, scenic views, and the type locality for the Tierra Redonda rock formation.

Frog Pond Mountain ACEC

-Designate 53 acres of public land as the Frog Pond Mountain Area of Critical Environmental Concern. The Frog Pond Mountain ACEC shall be managed for the protection of riparian resources and California Bay Forest.

Cypress Mountain ACEC

-Designate Cypress Mountain as an ACEC encompassing 1,092 acres of public land. The Cypress Mountain ACEC shall be managed to protect the rare and unique plant communities of serpentine chaparral and Northern Interior Cypress Forest, which is dominated by Sargent Cypress. Associated with these plant communities are several sensitive plant species which probably occur here, and will also receive appropriate protection. These are the San Luis sedge (*Carex obispoensis*), Santa Margarita manzanita (*Arctostaphylos pilosula* ssp. *pilosula*), San Luis mariposa lily (*Calochortus obispoensis*), and Cuesta Pass checkerbloom (*Sidalcea hickmanii* ssp. *anomala*). Hardham's bedstraw (*Galium hardhamiae*) is known to occur here.

Irish Hills ACEC

-Designate the Irish Hills area as an ACEC encompassing 1097 acres of public land and 680 acres of reserved mineral estate. The Irish Hills ACEC shall be managed to protect biodiversity and coastal plant communities.

Rusty Peak ACEC

-Designate the Rusty Peak area as an ACEC encompassing 797 acres of public land and 80 acres of reserved mineral estate. The Rusty Peak ACEC shall be managed to protect serpentine chaparral, coastal live oak woodland, perennial grassland, and San Luis serpentine dudleya (*Dudleya bettinae*), which is a narrowly endemic plant species. Other sensitive plant species that may be found here will receive protection commensurate with their sensitivity.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion. Land acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas, or lands identified in this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-these lands will not be opened to operation of the mining laws, will be closed to all forms of mineral leasing, and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate.

-these lands will be retained in Federal ownership and closed to disposal under the general land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-they will be closed to livestock grazing unless research shows grazing is necessary to reach management objectives;

ACEC	Terms and Conditions													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Pt. Sal	X	X	X			X	X			X	X			X
CA Rocks & Islands					X									
Salinas River	X	X		X		X			X					
Tierra Redonda	X	X	X			X						X		
Frog Pond Mtn	X	X	X			X		X			X		X	
Cypress Mtn	X	X	X			X								
Irish Hills	X	X	X			X								
Rusty Pk	X	X	X			X								
Terms & Cond.	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Pt. Sal				X				X						X
CA Rocks & Islands				X									X	
Salinas River			X	X		X	X		X			X		
Tierra Redonda				X					X					
Frog Pond Mtn					X		X		X			X		
Cypress Mtn	X			X					X					
Irish Hills	X				X					X	X			
Rusty Peak		X		X										

Table 9a

-these lands will be closed to camping;

-public access off designated routes is limited to pedestrian access; and

-they will be closed to vegetative material collection.

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless otherwise specified elsewhere in this plan, threatened and endangered species range will be available for oil, gas, and geothermal leasing subject to major constraints.

General

-Manage public lands in the Upper Calf Canyon (Sec. 35, T. 28 S., R. 13 E., and Secs. 1, 2, 11, and 12 T. 29 S., R. 13 E., MDB&M) for the protection and enhancement of *Chorizanthe rectispina*. This land shall be subject to collection of vegetative materials only by permit, and limited to pedestrian and equestrian access off designated routes of travel.

-Manage public lands in South Mountain / Oak Ridge (Secs. 19 and 20, T. 3 N., R. 20 W., SBB&M) for the protection of the coastal sage scrub community. This land shall be open to oil and gas leasing under major constraints for

ACEC Terms and Conditions

1. The ACEC is closed to oil, gas, and geothermal leasing.
2. The ACEC is closed to the leasing of solid leasable minerals and to the disposal of mineral materials.
3. All public land within the ACEC shall be proposed for withdrawal from the mining laws.
4. All public lands shall be proposed for withdrawal from the mining laws and closed to recreational mining.
5. The existing closures to mineral leasing, sale, and location and the withdrawal from the land laws governing land use and disposal shall be retained.
6. The ACEC is closed to livestock grazing.
7. No camping is permitted within the ACEC.
8. The riparian zone is closed to camping.
9. Dispersed camping is permitted outside of the riparian area only.
10. Public lands within the ACEC are closed to shooting.
11. The ACEC is designated as closed to public vehicle use. Motor vehicles may continue to be used for administrative purposes.
12. Public access off designated routes of travel is restricted to pedestrian and equestrian access only. Sand dunes are additionally limited to pedestrian access only.
13. Public access is restricted to pedestrian access only.
14. Public access is limited to designated foot trails within the ACEC.
15. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
16. Public access off designated routes of travel is restricted to pedestrian access only.
17. Horses will be allowed to travel off designated routes only outside the riparian zone. Pedestrian access is permitted off designated routes throughout the ACEC.
18. These lands shall be managed under Class II VRM guidelines.
19. These lands shall be managed under Class III VRM guidelines.
20. Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.
21. Future water diversions are prohibited.
22. All public land within the ACEC shall be proposed for withdrawal from the public land laws governing land use and disposal.
23. This ACEC is a right of way exclusion area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
24. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
25. Future rights of way are restricted to existing corridors.
26. Collection of vegetative materials within the ACEC requires a permit.
27. The Bureau shall retain the existing MOU with CDF&G which gives them management responsibility for the ACEC. This agreement results in the protection of the wildlife resource in general by limiting human activities during the nesting season, prohibiting the removal of products which have commercial value, and by providing for periodic biological surveys.
28. Lion Rock shall be managed for the protection of wildlife, including populations of marine mammals and large populations of seabirds.

Table 9b

the protection of the California condor, shall be subject to collection of vegetative materials only by permit, and shall be limited to pedestrian and equestrian access off designated routes of travel.

-Manage public lands at Klau Mine (Sec. 33., T. 26 S., R. 10 E., and Secs. 3, 4, 5, 8, 9, 10, 16, T. 27 S., R. 10 E., MDB&M) for the protection of riparian resources and *Arctostaphylos luciana*. This land shall be subject to collection of vegetative materials only by permit, and limited to pedestrian and equestrian access off designated routes of travel.

Grazing

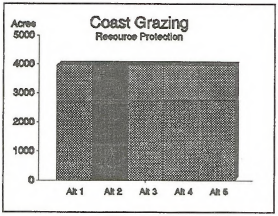


Figure 12

-Livestock grazing shall be authorized on 3,953 acres of public land in 7 allotments at levels shown in Appendix D-1. Allotments will be managed at 500 pounds per acre of minimum residual mulch. Utilization of perennial species on all allotments will be allowed up to 40% of the current annual year's growth. As shown in Appendix D-1, grazing will be allowed only during the "green season" of 12/1 - 5/31 for the Coast Management Area.

-Allotments within potential habitat for any species listed as threatened or endangered by the USF&WS will be managed at 700 pounds per acre of minimum residual mulch. Should an allotment include potential habitat for *Eriastrum hooveri, Lembertia congdonii, or Caulanthus californicus,* grazing use in that allotment will only be allowed during 6/1 - 10/31. If restrictions for an allotment cumulatively exclude the possibility of use, then no grazing will be authorized. As a result, livestock grazing will be suspended on 1,960 acres of public land in three allotments due to seasonal restriction conflicts. Future adjustments shall be based on monitoring data or new information regarding the occurrence of threatened or endangered species.

-No new grazing allotments will be authorized. Presently unalloted lands will remain unavailable for grazing.

Lands

-A total of 7,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the emphasized method of disposal. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales shall be used only in special circumstances.

-Acquisitions, with an emphasis on purchase, shall target lands with high resource values including lands within ACECs, WSAs, or threatened and endangered species conservation areas.

-Public land that has been classified as critical condor habitat or essential condor habitat will be retained in public ownership until the U.S. Fish & Wildlife Service removes such classification from the parcels, except where specified below. Public land in T.32S., R.23E., Sec. 28, MDB&M, and T.11N., R.24W., Sec 9, SBB&M, which is classified as essential condor habitat, may be considered for disposal after completion of formal consultation with the U.S. Fish & Wildlife Service.

-Public land near Hopper Mountain in :

T. 4 N., R. 18 W., Sections 4, 5, 6, 7, 8, 18,
T. 4 N., R. 19 W., Sections 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 22 and 24,
T. 4 N., R. 20 W., Section 1, S.B.B.& M.

will remain unavailable for disposal because of its importance to the California Condor.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated pathways, and communication lines for interstate use.

-New right-of-way authorizations within designated corridors will require NEPA analysis. Special terms and conditions will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-Avoidance areas include the following: lands identified for possible disposal, Irish Hills ACEC, and Wild & Scenic Rivers.

-Exclusion Areas include the following: WSA's, Wilderness Areas, and all other ACECs.

-New proposals for wind energy development will not be considered.

-Existing, designated communication sites are limited to those listed in Appendix C-2.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide and management area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, exclusive of lands managed by other Federal agencies.

Leasable Minerals (including Oil & Gas)

-Approximately 51,000 acres of mineral estate (72%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on about 14,000 acres (20%) of Federal mineral estate within lands established as State and County parks under the Recreational and Public Purposes Act, within corridors eligible for Wild and Scenic River Designation, within VRM Class II areas, or within threatened and endangered species habitat.

-Manage Federal mineral estate in Secs 11 and 12, T. 5 N., R. 31 W., SBB&M to minimize risk to national security. Mineral leasing may occur subject to No Surface Occupancy.

-Approximately 6,000 acres (9%) of Federal mineral estate in the management area, including designated wild and scenic rivers, are closed to leasing of oil, gas and geothermal resources.

-Nearly 55,000 acres of Federal mineral estate (77%) are open to development of other leasable minerals. About 10,000 acres (24%) within threatened and endangered species habitat and VRM Class II lands are subject to major constraints. An additional 8,000 acres (19%) of Federal mineral estate are proposed for closure within certain ACECs, or are presently closed within BLM Wilderness Areas and State and County parks which were established under the Recreational and Public Purposes Act.

-Mineral leasing at Camp Roberts on 22,000 acres of land within threatened and endangered species habitat will be subject to major constraints. The status of leasing on other military bases in the management area is discussed under the section "Land Use Allocations Common to All Alternatives" for the Coast Management Area.

Mineral Materials

-Approximately 56,000 acres of Federal mineral estate (78%) are open to development of mineral materials. About 6,000 acres (8%) within threatened and endangered species habitat are subject to major constraints. An additional 10,000 acres (14%) of Federal mineral estate are proposed for closure within certain ACECs, or are presently closed within BLM Wilderness Areas and State and County parks which were established under the Recreational and Public Purposes Act.

Locatable Minerals

-A total of 62,000 acres of Federal mineral estate (87%) are open to development of other locatable minerals. 9,000 acres (13%), of Federal mineral estate are proposed for withdrawal within certain ACECs, or are presently withdrawn within BLM Wilderness Areas and State and County parks which were established under the Recreational and Public Purposes Act.

Recreation

-Point Sal, California Rocks and Islands, and Frog Pond Mountain ACECs are designated as "closed" to OHVs, as are the Machesna and Santa Lucia Wilderness Areas and any future Wilderness Area designated by Congress. All other public lands in the management area are designated as "limited" for OHV use. In areas designated as "limited", vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-Management actions will not degrade VRM classes.

-In order to protect the safety of private landowners, the following area shall be a no shooting zone: SE¼ Sec. 9, SW¼NW¼, NE¼SW¼ Sec. 10, NE¼NE¼ Sec. 16, T. 27 S., R 10 E., M.D.M.

Management Actions

-Sign ACEC boundaries.

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality in oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Rusty Peak shall be monitored at least every 3 to 5 years. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species).

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Alternative 3 - Administrative Adjustments

Objectives

1. Improve management effectiveness and increase the availability of public lands to the public, through land acquisition, exchange, or disposal. Obtain lands with high resource values either through purchase, or through the exchange of parcels with low resource values.

2. Encourage oil and gas leasing, exploration, and production while minimizing residual impacts to sensitive resources.

3. Provide opportunities for low impact recreational uses that are compatible with natural resource protection.

4. Provide for livestock grazing while minimizing residual impacts and providing for the protection and recovery of sensitive resources.

Land Use Allocations

ACECs

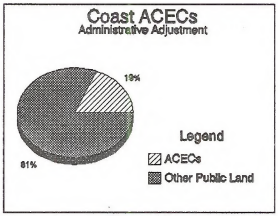


Figure 13

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 10a, 10b. Appendix A-3 also shows necessary support actions.

Point Sal ACEC

-The Point Sal ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompassed approximately 50 acres of public land.

The area was resurveyed by the Bureau of Land Management in 1988. With the identification of additional public lands, the size of the ACEC increased to 77 acres. Lion Rock was not part of the ACEC originally, but with adoption of this plan it will be added.

Pt. Sal is to be managed for the protection of highly sensitive and unique resources, including: cultural resources; threatened, endangered, and sensitive plants and wildlife; marine invertebrates and mammals; the ophiolite sequence; fragile soils; and scenic values.

California Rocks and Islands Wildlife ACEC

-The California Rocks and Islands Wildlife Sanctuary ACEC consists of a multitude of unsurveyed rocks, reefs, and islands along the California coast. The exact size of the ACEC is unknown, but it includes all offshore public land above mean high tide. The entire ACEC extends from the Mexican border to Oregon, but this land use plan only affects those portions of the ACEC in Ventura, Santa Barbara, and San Luis Obispo Counties. The ACEC is withdrawn from settlement, sale, location, or entry, under the general land laws governing land use and disposal, including the mining laws, and from leasing under the mineral leasing laws. The ACEC will be managed to reinforce or ensure the protection of wildlife, including populations of marine mammals and large populations of seabirds.

Salinas River ACEC

-Designate 1,000 acres of public land and 840 acres of reserved mineral estate as the Salinas River ACEC. The Salinas River ACEC shall be managed to protect biodiversity and the

ACEC	Terms and Conditions													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Pt. Sal	X			X	X		X	X			X			
CA Rocks & Islands						X								
Salinas River	X		X		X		X			X				
Tierra Redonda	X			X	X		X					X	X	
Frog Pond Mtn	X			X	X		X		X		X			X
Cypress Mtn	X			X			X					X		
Irish Hills		X	X				X					X		
Terms & Cond.	15	16	17	18	19	20	21	22	23	24	25	26	27	
Pt. Sal	X			X				X					X	
CA Rocks & Islands				X								X		
Salinas River			X		X	X	X		X					
Tierra Redonda				X					X					
Frog Pond Mtn					X		X		X		X			
Cypress Mtn				X					X					
Irish Hills					X				X	X				

Table 10a

exemplary riparian area, which is used by beavers and waterfowl.

Tierra Redonda ACEC

-Designate Tierra Redonda Mountain as an ACEC encompassing 320 acres of public land and 80 acres of reserved mineral estate. The Tierra Redonda Mountain ACEC shall be managed to protect the paleontological resources, the unique sand dune formation, limestone streamside habitat, coast live oak woodland, biodiversity, several rare and endemic plant taxa including *Lasthenia leptalea*, scenic views, and the type locality for the Tierra Redonda rock formation.

Frog Pond Mountain ACEC

-Designate 53 acres of public land as the Frog Pond Mountain Area of Critical Environmental Concern. The Frog Pond Mountain ACEC shall be managed for the protection of riparian resources.

Cypress Mountain ACEC

-Designate Cypress Mountain as an ACEC encompassing 1,092 acres of public land. The Cypress Mountain ACEC shall be managed to protect the rare and unique plant communities of serpentine chaparral and Northern Interior Cypress Forest, which is dominated by Sargent Cypress. Associated with these plant communities are several sensitive plant

Terms and Conditions
1. The ACEC shall be managed under an NSO stipulation for oil, gas, and geothermal leasing.
2. The ACEC is open for oil, gas, and geothermal leasing subject to major constraints.
3. The ACEC is open to the leasing of solid leasable minerals and to the disposal of mineral materials subject to major constraints.
4. The ACEC is closed to the leasing of solid leasable minerals and to the disposal of mineral materials.
5. All public land within the ACEC shall be proposed for withdrawal from the mining laws.
6. The existing closures to mineral leasing, sale, and location and the withdrawal from the land laws governing land use and disposal shall be retained.
7. The ACEC is closed to livestock grazing.
8. No camping is permitted within the ACEC.
9. The riparian zone is closed to camping.
10. Dispersed camping is permitted outside of the riparian area only.
11. The ACEC is designated as closed to public vehicle use. Motor vehicles may continue to be used for administrative purposes.
12. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
13. Sand dunes are additionally limited to pedestrian access only.
14. Public access is restricted to pedestrian access only.
15. Pedestrian access is limited to designated trails within the ACEC.
16. Public access off designated routes of travel is restricted to pedestrian access only.
17. Horses may travel off designated routes only outside the riparian zone.
18. These lands shall be managed under Class II VRM guidelines.
19. These lands shall be managed under Class III VRM guidelines.
20. Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.
21. Future water diversions are prohibited.
22. All public land within the ACEC shall be proposed for withdrawal from the public land laws governing land use and disposal.
23. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
24. Future rights of way are restricted to existing corridors.
25. Collection of vegetative materials within the ACEC requires a permit.
26. The Bureau shall retain the existing MOU with CDF&G which gives them management responsibility for the ACEC. This agreement results in the protection of the wildlife resource in general by limiting human activities during the nesting season, prohibiting the removal of products which have commercial value, and by providing for periodic biological surveys.
27. Lion Rock shall be managed for the protection of wildlife, including populations of marine mammals and large populations of seabirds.

Table 10b

species which probably occur here, and will also receive appropriate protection. These are the San Luis sedge (*Carex obispoensis*), Santa Margarita manzanita (*Arctostaphylos pilosula* ssp. *pilosula*), San Luis mariposa lily (*Calochortus obispoensis*), and Cuesta Pass checkerbloom (*Sidalcea hickmanii* ssp. *anomala*). Hardham's bedstraw (*Galium hardhamiae*) is known to occur here.

Irish Hills ACEC

-Designate the Irish Hills area as an ACEC encompassing 1097 acres of public land and 680 acres of reserved mineral estate. The Irish Hills ACEC shall be managed to protect biodiversity and coastal plant communities.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion. Land acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas, or lands identified by this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-the area shall be open to leasing of oil, gas, and geothermal resources subject to NSO or other major constraints;

-these lands will not be opened to operation of the mining laws and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate;

-these lands will be retained in Federal ownership and closed to disposal under the general land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-manage livestock grazing to foster restoration and enhancement of plant communities and listed plant and animal species;

-camping is restricted to designated locations; and

-public access off designated routes is limited to pedestrian and equestrian access.

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless otherwise specified elsewhere in this plan, threatened and endangered species range will be available for oil, gas, and geothermal leasing subject to major constraints.

General

Rusty Peak, encompassing 797 acres of public land and 80 acres of reserved mineral estate within Sections 29, 30, 31, 32, T. 28 S., R. 11 E. MDB&M, shall be managed to protect serpentine chaparral, coastal live oak woodland, perennial grassland, and San Luis serpentine dudleya (*Dudleya bettinae*), which is a narrowly endemic plant species. Other sensitive plant species that may be found here will receive protection commensurate with their sensitivity. Specific prescriptions include:

-This parcel is open to leasing of oil, gas, and geothermal resources subject to major constraints.

-It is closed to livestock grazing.

-Public access off designated routes of travel is restricted to pedestrian access only.

Grazing

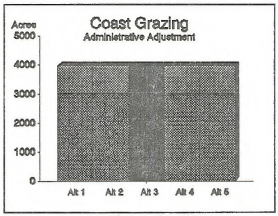


Figure 14

-Livestock grazing shall be authorized on 3,953 acres of public land in 7 allotments at levels shown in Appendix D-1. The minimum residual mulch level in areas within potential habitat for species listed as threatened or endangered by the USF&WS shall be 500 pounds per acre. All other allotments shall be

managed at the mulch levels shown in Appendix D-1. Utilization of perennial species will be allowed up to 50% of the current annual year's growth. Future adjustments shall be based on monitoring data or new information regarding the occurrence of threatened or endangered species.

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 18,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the emphasized method of disposal. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales shall be used only in special circumstances.

-Acquisitions, with an emphasis on purchase, shall target lands with high resource values including lands within ACECs, WSAs, or threatened and endangered species conservation areas.

-Public land near Hopper Mountain in :

T. 4 N., R. 18 W., Sections 4, 5, 6, 7, 8, 18,
T. 4 N., R. 19 W., Sections 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 22 and 24,
T. 4 N., R. 20 W., Section 1, SBB&M

will remain unavailable for disposal because of its value to the California condor.

-All public land that has been classified as critical condor habitat will remain in public ownership. All public land that has been classified as essential condor habitat will be considered for disposal only after formal consultation with the U.S. Fish and Wildlife Service.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated pathways, and communication lines for interstate use.

-New right-of-way authorizations within designated corridors will require NEPA analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-Avoidance areas include the following: ACECs, lands identified for possible disposal, and Wild & Scenic Rivers.

-Exclusion Areas include the following: WSA's and Wilderness Areas.

-Proposals for wind energy development may be considered, on a case-by-case basis, on lands outside of ACECs, SRMAs, wilderness areas, and wilderness study areas.

-Existing, designated communication sites are listed in Appendix C-2. Authorization for new sites will be considered on a case-by-case basis.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide and management area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate

in the management area, excluding lands managed by other Federal agencies.

Leasable Minerals (including Oil & Gas)

-Nearly 55,000 acres of mineral estate (79%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on about 13,000 acres (19%) of Federal mineral estate within certain ACECs, lands established as State and County parks under the Recreational and Public Purposes Act, within corridors eligible for Wild and Scenic River Designation, and threatened and endangered species habitat.

-Manage Federal mineral estate in Secs 11 and 12, T. 5 N., R. 31 W., SBB&M to minimize risk to national security. Mineral leasing may occur subject to No Surface Occupancy.

-An estimated 2,000 acres (3%) of Federal mineral estate in the management area, including designated wild and scenic rivers, are closed to leasing of oil, gas and geothermal resources.

-Approximately 56,000 acres of Federal mineral estate (79%) are open to development of other leasable minerals. An additional 10,000 acres (14%) of the Federal mineral estate are available for development of other leasable minerals under major constraints. About 5,000 acres (7%), of Federal mineral estate are proposed for closure within certain ACECs, or are presently closed within BLM Wilderness Areas and State and County parks which were established under the Recreational and Public Purposes Act.

-Mineral leasing at Camp Roberts on 22,000 acres of land within threatened and endangered species habitat will be subject to major constraints. The status of leasing on other military bases in the management area is discussed under the section "Land Use Allocations Common to All Alternatives" for the Coast Management Area.

Mineral Materials

-Approximately 55,000 acres of Federal mineral estate (76%) are open to extraction of mineral materials. 10,000 acres (14%) of the Federal mineral estate are available for development under major constraints. About 7,000 acres (10%), of Federal mineral estate are closed within certain ACECs, or are presently closed within BLM Wilderness Areas and State and County parks which were established under the Recreational and Public Purposes Act.

Locatable Minerals

-Nearly 66,000 acres of Federal mineral estate (92%) are open to development of other leasable minerals. Another 6,000 acres (9%), of Federal mineral estate are proposed for withdrawal within certain ACECs, or are presently withdrawn within BLM Wilderness Areas and State and County parks which were established under the Recreational and Public Purposes Act.

Recreation

-Point Sal, California Rocks and Islands, and Frog Pond Mountain ACECs are designated as "closed" to OHVs, as shall be any wilderness areas designated by Congress. All other public lands in the management area are designated as "limited" for OHV use. In areas designated as "limited", vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-Management actions will not degrade VRM classes.

-In order to protect the safety of private landowners, the following area shall be a no shooting zone: SE¼ Sec. 9, SW¼NW¼, NE¼SW¼ Sec. 10, NE¼NE¼ Sec. 16, T. 27 S., R. 10 E., M.D.B.& M.

Management Actions

-Sign ACEC boundaries.

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Alternative 4 - Development Emphasis

Objectives

1. Improve management effectiveness while retaining significant resource values and areas of high mineral potential, through the disposal of lands in this management area in exchange for consolidation of land elsewhere in the Resource Area.

2. Encourage oil and gas leasing, exploration, and production while providing for protection of sensitive resources.

3. Increase opportunities for recreational activities while providing resource protection.

4. Increase opportunities for livestock grazing while providing protection of sensitive species.

Land Use Allocations

ACECs

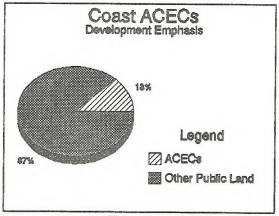


Figure 15

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 11a, 11b. Appendix A-3 also shows necessary support actions.

Point Sal ACEC

-The Point Sal ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompassed approximately 50 acres of public land.

The area was resurveyed by the Bureau of Land Management in 1988. With the identification of additional public lands, the size of the ACEC increased to 77 acres. Lion Rock was not considered part of the ACEC originally, but with adoption of this plan it will be added.

Pt. Sal is to be managed for the protection of highly sensitive and unique resources, including: cultural resources; threatened, endangered, and sensitive plants and wildlife; marine invertebrates and mammals; the ophiolite sequence; fragile soils; and scenic values.

California Rocks and Islands Wildlife ACEC

-The California Rocks and Islands Wildlife Sanctuary ACEC consists of a multitude of unsurveyed rocks, reefs, and islands along the California coast. The exact size of the ACEC is unknown, but it includes all offshore public land above mean high tide. The entire ACEC extends from the Mexican border to Oregon, but this land use plan only affects those portions of the ACEC in Ventura, Santa Barbara, and San Luis Obispo Counties. The ACEC is withdrawn from settlement, sale, location, or entry, under the general land laws governing land use and disposal, including the mining laws, and from leasing under the mineral leasing laws. The ACEC will be managed to reinforce or ensure the protection of wildlife, including populations of marine mammals and large populations of seabirds.

Salinas River ACEC

-Designate 1,000 acres of public land, and 840 acres of reserved mineral estate as the Salinas River ACEC. The Salinas River ACEC shall be managed to protect biodiversity and the exemplary riparian area, which is used by

ACEC	Terms and Conditions											
	1	2	3	4	5	6	7	8	9	10	11	12
Pt. Sal	X	X	X		X	X			X			
CA Rocks & Islands				X								
Salinas River					X			X				
Tierra Redonda					X					X	X	
Frog Pond Mtn					X		X		X			X
Cypress Mtn					X					X		
Terms & Cond.	13	14	15	16	17	18	19	20	21	22	23	
Pt. Sal	X		X			X					X	
CA Rocks & Islands			X							X		
Salinas River		X		X	X		X					
Tierra Redonda				X				X				
Frog Pond Mtn				X			X		X			
Cypress Mtn				X			X					

Table 11a

beavers and waterfowl.

Tierra Redonda ACEC

-Designate Tierra Redonda Mountain as an ACEC encompassing 320 acres of public land and 80 acres of reserved mineral estate. The Tierra Redonda Mountain ACEC shall be managed to protect the paleontological resources, the unique sand dune formation, coast live oak woodland, biodiversity, scenic view, and the type locality for the Tierra Redonda rock formation.

Frog Pond Mountain ACEC

-Designate 53 acres of public land as the Frog Pond Mountain Area of Critical Environmental Concern. The Frog Pond Mountain ACEC shall be managed for the protection of riparian resources.

Cypress Mountain ACEC

-Designate Cypress Mountain as an ACEC encompassing 1,092 acres of public land. The Cypress Mountain ACEC shall be managed to protect the rare and unique plant communities of serpentine chaparral and Northern Interior Cypress Forest, which is dominated by Sargent Cypress. Associated with these plant communities are several sensitive plant species which probably occur here, and will also receive appropriate protection. These are the San Luis sedge (*Carex obispoensis*), Santa Margarita manzanita (*Arctostaphylos pilosula* ssp. *pilosula*), San Luis mariposa lily (*Calochortus obispoensis*), and Cuesta Pass checkerbloom (*Sidalcea hickmanii* ssp. *anomala*). Hardham's bedstraw (*Galium hardhamiae*) is known to occur here.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion. Lands acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas, or lands identified by this plan

Terms and Conditions	
1.	The ACEC shall be managed under an NSO stipulation for oil, gas, and geothermal leasing.
2.	The ACEC is closed to the leasing of solid leasable minerals and to the disposal of mineral materials.
3.	All public land within the ACEC shall be proposed for withdrawal from the mining laws.
4.	The existing closures to mineral leasing, sale, and location and the withdrawal from the land laws governing land use and disposal shall be retained.
5.	The ACEC is closed to livestock grazing.
6.	No camping is permitted within the ACEC.
7.	The riparian zone is closed to camping.
8.	Dispersed camping is permitted outside of the riparian area only.
9.	The ACEC is designated as closed to public vehicle use. Motor vehicles may continue to be used for administrative purposes.
10.	Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
11.	Sand dunes are additionally limited to pedestrian access only.
12.	Public access is restricted to pedestrian access only.
13.	Pedestrian access is limited to designated trails within the ACEC.
14.	Horses may travel off designated routes only outside the riparian zone.
15.	These lands shall be managed under Class II VRM guidelines.
16.	These lands shall be managed under Class III VRM guidelines.
17.	Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.
18.	All public land within the ACEC shall be proposed for withdrawal from the public land laws governing land use and disposal.
19.	This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, water diversions, and geophysical exploration, shall be restricted to those that are compatible with ACEC objectives and where residual impacts to sensitive resources are minimal.
20.	This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, water diversions, and geophysical exploration, shall be restricted to those that are compatible with ACEC objectives and where residual impacts to sensitive resources are minimal. The exception to this will be the allowable development of a communication site, which will be designed to minimize impacts.
21.	Collection of vegetative materials within the ACEC requires a permit.
22.	The Bureau shall retain the existing MOU with CDF&G which gives them management responsibility for the ACEC. This agreement results in the protection of the wildlife resource in general by limiting human activities during the nesting season, prohibiting the removal of products which have commercial value, and by providing for periodic biological surveys.
23.	Lion Rock shall be managed for the protection of wildlife, including populations of marine mammals and large populations of seabirds.

Table 11b

as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-the area shall be open to leasing of oil, gas, and geothermal resources subject to NSO or other major constraints;

-these lands will not be opened to operation of the mining laws and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate;

-these lands will be retained in Federal ownership and closed to disposal under the general land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-livestock grazing shall be managed to foster restoration and enhancement of plant communities and listed plant and animal species; and

-camping is restricted to designated locations.

Grazing

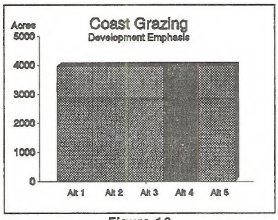


Figure 16

-Livestock grazing shall be authorized on 3,953 acres of public land in 7 allotments at levels shown in Appendix D-1. Allotments that had mulch levels identified in the previous land use plan will continue to be managed at those levels, as shown in Appendix D-1. Future adjustments shall be based on monitoring data or new information regarding the occurrence of threatened or endangered species.

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 12,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the emphasized method of disposal. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales shall be used only in special circumstances.

-Acquisition, through exchange or purchase, shall target lands with high resource values including lands within ACECs, WSAs, or threatened and endangered species conservation areas.

-Public land near Hopper Mountain in:

T. 4 N., R. 18 W., Sections 4, 5, 6, 7, 8, 18,
T. 4 N., R. 19 W., Sections 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 22 and 24,
T. 4 N., R. 20 W., Section 1, SBB&M

will remain unavailable for disposal due to its significance to the California condor.

-All public land available for disposal that has been classified as critical condor habitat will be considered for disposal only after formal consultation with the U.S. Fish and Wildlife Service.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated pathways, and communication lines for interstate use.

-New right-of-way authorizations within designated corridors will require NEPA analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-Right of Way avoidance areas include most ACECs and Wild and Scenic Rivers.

-Right of Way exclusion areas include the

following: WSA's, Wilderness Areas.

-Proposals for wind energy development will be considered on a case-by-case basis.

-Existing, designated communication sites are listed in Appendix C-2. Tierra Redonda Mountain (Sec. 10, T. 25 S., R. 9 E., MDB&M.) is designated as a new site. Designation of other sites will be considered on a case-by-case basis.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide and management area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

Leasable Minerals (including Oil & Gas)

-Approximately 67,000 acres of mineral estate (94%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on about 2,000 acres (3%) at Point Sal ACEC, designated and eligible wild and scenic rivers, and within State and County parks which were established under the Recreational and Public Purposes Act.

-Around 2,000 acres (3%) of Federal mineral estate within BLM Wilderness Areas are closed to leasing of oil, gas and geothermal resources.

-About 67,000 acres of Federal mineral estate (94%) are open to development of other leasable minerals. About 4,000 acres (6%), of Federal mineral estate are closed within certain ACECs, or are presently closed within BLM Wilderness Areas.

-Mineral leasing at Camp Roberts on 22,000 acres of land will be subject to minor constraints.

Mineral Materials

-Roughly 68,000 acres of Federal mineral estate (94%) are open to development of mineral materials. About 4,000 acres (6%), of Federal mineral estate are closed within certain ACECs, or are presently closed within BLM Wilderness Areas and State and County parks which were established under the Recreational and Public Purposes Act.

Locatable Minerals

-Approximately 68,000 acres of Federal mineral estate (94%) are open to development of other locatable minerals. About 4,000 acres (6%), of Federal mineral estate are proposed for withdrawal within certain ACECs, or are presently withdrawn within BLM Wilderness Areas and State and County parks which were established under the Recreational and Public Purposes Act.

Recreation

-Approximately 2,600 acres of public land in the Calf Canyon area, encompassing SE¼ Sec. 35, S½SW¼ Sec. 28, SE¼NE¼, N½SE¼ Sec. 32 , Sec. 33, W½, SE¼, S½NE¼ Sec. 34, T. 28 S., R. 13 E., and N½NW¼, SW¼NW¼, NW¼NE¼, Sec. 1, E½NE¼, W½W½, NE¼NW¼, NW¼SE¼, Sec. 2, NE¼, NW¼, SE¼, Sec. 3, and N½NE¼, Sec. 4, T. 29 S., R. 13 E., MDB&M, shall be developed as an OHV use area. Development of the site is contingent upon meeting PM_{10} air quality standards and all county planning regulations. Planning of an OHV use area will be done in coordination with OHV user groups.

-The Pt. Sal, California Rocks and Islands, and Frog Pond Mountain ACECs, as well as all WSAs and Wilderness Areas, are designated as "closed" to OHV use. All other public lands in the management area are designated as "limited". In areas designated as "limited",

vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

Management Actions

-Sign ACEC boundaries, and install interpretive signs.

-Develop a plan to manage OHV use in Calf Canyon.

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Alternative 5 - Preferred Alternative

Objectives

1. Improve resource management and management effectiveness through land acquisition, exchange, or disposal. Lands with high resource values may be obtained either through purchase, or through the exchange of parcels with low resource values.

2. Encourage oil and gas leasing, exploration, and production while minimizing residual impacts to sensitive resources.

3. Provide opportunities for low impact recreational uses that are compatible with natural resource protection.

4. Provide for livestock grazing while minimizing residual impacts and providing for the protection and recovery of sensitive resources.

Land Use Allocations

ACECs

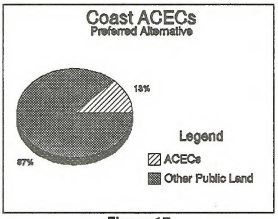


Figure 17

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 12a, 12b. Appendix A-3 also shows necessary support actions.

Point Sal ACEC

-The Point Sal ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompassed approximately 50 acres of public land.

The area was resurveyed by the Bureau of Land Management in 1988. With the identification of additional public lands, the size of the ACEC increased to 77 acres. Lion Rock was not part of the ACEC originally, but with adoption of this plan it will be added.

Pt. Sal is to be managed for the protection of highly sensitive and unique resources, including: cultural resources; threatened, endangered, and sensitive plants and wildlife; marine invertebrates and mammals; the ophiolite sequence; fragile soils; and scenic values.

California Rocks and Islands Wildlife ACEC

-The California Rocks and Islands Wildlife Sanctuary ACEC consists of a multitude of unsurveyed rocks, reefs, and islands along the California coast. The exact size of the ACEC is unknown, but it includes all offshore public land above mean high tide. The entire ACEC extends from the Mexican border to Oregon, but this land use plan only affects those portions of the ACEC in Ventura, Santa Barbara, and San Luis Obispo Counties. The ACEC is withdrawn from settlement, sale, location, or entry, under the general land laws governing land use and disposal, including the mining laws, and from leasing under the mineral leasing laws. The ACEC will be managed to reinforce or ensure the protection of wildlife, including populations of marine mammals and large populations of seabirds.

Salinas River ACEC

-Designate 1,000 acres of public land and 840 acres of reserved mineral estate as the Salinas River ACEC. The Salinas River ACEC shall be managed to protect biodiversity and the exemplary riparian area, which is used by beavers and waterfowl.

ACEC	Terms and Conditions													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Pt. Sal			X	X	X			X	X			X	X	
CA Rocks & Islands							X							
Salinas River		X		X		X		X			X			
Tierra Redonda	X			X	X			X						X
Frog Pond Mtn	X			X	X			X		X			X	
Cypress Mtn	X			X				X						X
Terms & Cond.	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Pt. Sal			X		X				X				X	
CA Rocks & Islands					X							X		
Salinas River				X		X	X			X				X
Tierra Redonda	X				X					X				
Frog Pond Mtn		X				X		X		X	X			
Cypress Mtn						X				X				

Table 12a

Tierra Redonda ACEC

-Designate Tierra Redonda Mountain as an ACEC encompassing 320 acres of public land and 80 acres of reserved mineral estate. The Tierra Redonda Mountain ACEC shall be managed to protect the paleontological resources, the unique sand dune formation, coast live oak woodland, biodiversity, scenic view, and the type locality for the Tierra Redonda rock formation.

Frog Pond Mountain ACEC

-Designate 53 acres of public land as the Frog Pond Mountain Area of Critical Environmental Concern. The Frog Pond Mountain ACEC shall be managed for the protection of riparian resources.

Cypress Mountain ACEC

-Designate Cypress Mountain as an ACEC encompassing 1,092 acres of public land. The Cypress Mountain ACEC shall be managed to protect the rare and unique plant communities of serpentine chaparral and Northern Interior Cypress Forest, which is dominated by Sargent cypress. Associated with these plant communities are several sensitive plant species which probably occur here, and will also receive appropriate protection. These are the San Luis sedge (*Carex obispoensis*), Santa Margarita manzanita (*Arctostaphylos pilosula* ssp. *pilosula*), San Luis mariposa lily (*Calochortus obispoensis*), and Cuesta Pass checkerbloom (*Sidalcea hickmanii* ssp. *anomala*). Hardham's bedstraw (*Galium hardhamiae*) is known to occur here.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion. Land acquisitions will target areas

Terms and Conditions	
1.	The ACEC shall be managed under an NSO stipulation for oil, gas, and geothermal leasing.
2.	The riparian zone shall be managed under an NSO stipulation for oil, gas, and geothermal leasing.
3.	The ACEC is closed to oil, gas, and geothermal leasing. Development of the existing lease will require compensation for sensitive vegetation, wildlife, and cultural resources.
4.	The ACEC is closed to the leasing of solid leasable minerals and to the disposal of mineral materials.
5.	All public land within the ACEC shall be proposed for withdrawal from the mining laws.
6.	Lands within the riparian zone shall be proposed for withdrawal from the mining laws.
7.	The existing closures to mineral leasing, sale, and location and the withdrawal from the land laws governing land use and disposal shall be retained.
8.	The ACEC is closed to livestock grazing.
9.	No camping is permitted within the ACEC, unless required for administrative purposes and approved by the authorized officer.
10.	The riparian zone is closed to camping.
11.	Dispersed camping is permitted outside of the riparian area only.
12.	All lands within ¼ mile of any trails and parking areas are closed to shooting for safety reasons.
13.	The ACEC is designated as closed to OHV use. Motor vehicles may continue to be used for administrative purposes.
14.	Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
15.	Sand dunes are additionally limited to pedestrian access only.
16.	Public access is restricted to pedestrian access only.
17.	Public access is limited to pedestrians on designated trails within the ACEC.
18.	Horses may travel off designated routes only outside the riparian zone.
19.	These lands shall be managed under Class II VRM guidelines.
20.	These lands shall be managed under Class III VRM guidelines.
21.	Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.
22.	Future water diversions are prohibited.
23.	All public land within the ACEC shall be proposed for withdrawal from the public land laws governing land use and disposal.
24.	This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
25.	Collection of vegetative materials within the ACEC requires a permit.
26.	The Bureau shall retain the existing MOU with CDF&G which gives them management responsibility for the ACEC. This agreement results in the protection of the wildlife resource in general by limiting human activities during the nesting season, prohibiting the removal of products which have commercial value, and by providing for periodic biological surveys.
27.	Lion Rock shall be managed for the protection of wildlife, including populations of marine mammals and large populations of seabirds.
28.	Dredging and water diversions are prohibited.

Table 12b

identified by the USF&WS and CDF&G as recovery areas, or lands identified by this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-these lands will be retained in Federal ownership and closed to disposal under the general land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-these lands will not be opened to

operation of the mining laws and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate.

-the area shall be open to leasing of oil, gas, and geothermal resources subject to NSO or other major constraints;

-camping is restricted to designated locations;

-livestock grazing shall be managed to foster restoration and enhancement of plant communities and listed plant and animal species.

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless otherwise specified elsewhere in this plan, all threatened and endangered species range (except condor range) will be available for oil, gas, and geothermal leasing subject to major constraints.

General

-The Irish Hills, encompassing 1097 acres of public land and 680 acres of reserved mineral estate, shall be managed to protect biodiversity and coastal plant communities. Special prescriptions for this area include:

-These parcels are open to leasing of oil, gas, and geothermal resources subject to major constraints.

-They are closed to livestock grazing.

-Public access off designated routes of travel is restricted to pedestrian and equestrian access only.

-Rusty Peak, encompassing 797 acres of public land and 80 acres of reserved mineral estate within Sections 29, 30, 31, 32, T. 28 S., R. 11 E. MDB&M, shall be managed to protect serpentine chaparral, coastal live oak woodland, perennial grassland, and San Luis serpentine dudleya (*Dudleya bettinae*), which is a narrowly endemic plant species. Other sensitive plant species that may be found here will receive protection commensurate with their sensitivity. Specific prescriptions include:

-This land is open to leasing of oil, gas, and geothermal resources subject to major constraints.

-It is closed to livestock grazing.

-Public access off designated routes of travel is restricted to pedestrian access only.

-Public lands around the Santa Margarita Lake will be managed to protect and enhance natural values while providing opportunities for recreation.

Grazing

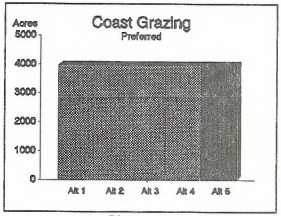


Figure 18

-Livestock grazing shall be authorized on 3,953 acres of public land in 7 allotments at levels shown in Appendix D-1. The minimum residual mulch level in areas within potential habitat for species listed as threatened or endangered by the USF&WS shall be 500 pounds per acre of the minimum residual mulch. All other allotments shall be managed at the mulch levels and according to the prescriptions shown in Appendix D-1. Utilization of perennial species will be allowed up to 50% of the current annual year's growth. Future adjustments shall be based on monitoring data or new information regarding

the occurrence of threatened or endangered species.

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 14,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). First consideration for disposal shall be to exchange. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales shall be used only when resource values are low or where the action will benefit management of the parcel or other public lands.

-Acquisitions, with an emphasis on purchase, shall target lands with high resource values including lands within ACECs, WSAs, or threatened and endangered species conservation areas.

-Public land near Hopper Mountain in :

T. 4 N., R. 18 W., Sections 4, 5, 6, 7, 8, 18,
T. 4 N., R. 19 W., Sections 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 22 and 24,
T. 4 N., R. 20 W., Section 1, SBB&M

will remain unavailable for disposal because of their value to the California condor.

-All public land that has been classified as critical condor habitat will remain in public ownership. All public land that has been classified as essential condor habitat will be considered for disposal only after formal consultation with the U.S. Fish and Wildlife Service.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated pathways, and communication lines for interstate use.

-New right-of-way authorizations within designated corridors will require NEPA analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-Right-of-way avoidance areas include the following: ACEC's; Wild, Scenic, and Recreational Rivers; and lands identified for possible disposal.

-Right-of-way exclusion areas include all Wilderness Areas and WSAs.

-Proposals for wind energy development may be considered, on a case-by-case basis, on lands outside of ACEC's, SRMA's, wilderness areas, and wilderness study areas.

-Existing, designated communication sites are listed in Appendix C-2. Authorization for new sites will be considered on a case-by-case basis.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide and management area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

Leasable Minerals (Including Oil & Gas)

-An estimated 52,000 acres of mineral estate (73%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on about 17,000 (24%) acres of Federal mineral estate within certain ACECs, lands established as State and County parks under the Recreational and Public Purposes Act, lands managed under VRM Class II, within corridors eligible for Wild and Scenic River Designation, and threatened and endangered species habitat.

-Manage Federal mineral estate in Secs 11 and 12, T. 5 N., R. 31 W., SBB&M to minimize risk to national security. Mineral leasing may occur subject to No Surface Occupancy.

-About 2,000 acres (3%) of Federal mineral estate in the management area, including designated wild and scenic rivers, are closed to leasing of oil, gas and geothermal resources.

-Nearly 57,000 acres of Federal mineral estate (80%) are open to development of other leasable minerals. An additional 7,000 acres (10%) within threatened and endangered species habitat are subject to major constraints. An additional 7,000 acres (10%), of Federal mineral estate are closed within certain ACECs, BLM Wilderness Areas and State and County parks which were established through the Recreational and Public Purposes Act.

-Mineral leasing at Camp Roberts on 22,000 acres of land within threatened and endangered species habitat will be subject to major constraints. The status of leasing on other military bases in the management area is discussed under the section "Land Use Allocations Common to All Alternatives" for the Coast Management Area.

Mineral Materials

-About 58,000 acres of Federal mineral estate (82%) are open to extraction of mineral materials. An additional 6,000 acres (8%) of the Federal mineral estate are available for development under major constraints. About 7,000 acres (10%) of the Federal mineral estate are closed within some ACECs, within BLM Wilderness Areas, and State and County parks which were established through the Recreational and Public Purposes Act.

Locatable Minerals

-Approximately 67,000 acres of Federal mineral estate (93%) are open to development. 5,000 acres (7%), of Federal mineral estate are proposed for closure within certain ACECs, or within BLM Wilderness Areas, and State and County parks which were established through the Recreational and Public Purposes Act.

Recreation

-Point Sal, California Rocks and Islands, and Frog Pond Mountain ACECs are designated as "closed" to OHVs, as are the Machesna and Santa Lucia Wilderness Areas and any future wilderness area designated by Congress. All other public lands in the management area are designated as "limited" for OHV use. In areas designated as "limited", vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

Management Actions

-Ranger patrols will be increased where public access is acquired.

-Post ACEC boundaries, and provide interpretive signs.

-Post signs identifying public lands in oilfields either along the public land boundary, or where key access points cross the boundary.

-Rusty Peak shall be monitored at least every 3 to 5 years. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species).

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Rationale for the Preferred Alternative

Alternative 5 - The public lands within the Coast Management Area contain a wide variety of resource values ranging from wildlife, including sensitive species habitat, to sites of sociocultural significance to Native Americans, to areas with potential to provide increased opportunities for recreation use. These values occur on lands that are generally small, scattered, and often without legal access.

The Preferred alternative emphasizes land tenure adjustments as a way to meet public needs and improve management efficiency. It provides for the retention, protection, and management of lands with highly valuable resources, while allowing lands with less significant resources to be exchanged for lands with greater values. Approximately 14,000 acres are available for disposal.

The lands within the Coast Management Area often contain unique natural communities that are found infrequently in Federal ownership; Pt. Sal is a prime example. They therefore play a key role in biodiversity management. The retention of two ACECs and the designation of four new ACECs will help the Bureau implement its resource protection mandate.

The exploration, leasing, and development of oil and gas, as well as other mineral resources, is encouraged to the extent possible. In instances where the surface management regulations or other restrictions are not adequate to protect sensitive resources, those lands are identified as closed to leasing or proposed for withdrawal. Elsewhere, lands that are less sensitive will be available for development subject to comprehensive protective measures. Over 95% of the Federal mineral estate will be open for oil and gas leasing; over half will be open with standard terms and conditions.

Although demands for recreational opportunities on public lands in this area are relatively low, they will be addressed through land exchanges and improved access.

Valley Management Area

Guidance and Decisions Common to All Alternatives

The following land use allocations and management actions apply to this management area under all alternatives.

Land Use Allocations Common to All Alternatives

General

-The name of the Reef Ridge ACEC, originally identified in the Coast Valley RMP, is changed to the Chico Martinez ACEC. This change is intended to eliminate confusion with the more widely known Reef Ridge found in Fresno and Kings Counties. This ACEC is referred to as the Chico Martinez ACEC in this plan.

-The Carrizo Plain Natural Area will be managed in cooperation with other agencies and local landowners: to enhance endangered species conservation; to restore the native floral & faunal communities; to address conflict resolution between oil & gas development, threatened and endangered species, and grazing; and to provide educational and interpretive opportunities. An activity plan, developed in conjunction with affected parties, will be used to identify specific management actions and objectives (Appendix J).

-Designate a recreational dog trial area and shooting range within the Temblor NCLWMA in anticipation of future SRPs and R&PP Act applications. Two separate areas in the Temblor Range may be utilized under the following conditions: the activity must have minimal residual impacts as determined by NEPA analysis; the trials must avoid potential habitat of Federally listed species; and surface disturbance must be limited to previously disturbed areas.

Biological Resources

-Public land within the Temblor NCLWMA will be managed to:

-improve and maintain shrub communities to benefit wildlife species including quail and chukar,

-stabilize steep unproductive sites to reduce erosion, and

-provide improved recreational opportunities by improving hunting access and route designations, and by segregating conflicting uses.

-Public land within the Caliente NCLWMA will be managed to:

-improve and maintain a unique and diverse assemblage of vegetative communities that will benefit wildlife species (including deer, quail and chukar), hunting, hiking and nature study, and

-provide improved recreational opportunities by improving hunting opportunities and route designations, and by segregating conflicting uses.

-Public lands identified by the USF&WS and CDF&G as important for the recovery of Federally listed species will be managed as threatened and endangered species conservation areas (Appendix B). These areas will be managed in a manner consistent with the direction established by the USF&WS and CDF&G. Public land near Carrizo Plain, Goose Lake, Lokern, Elk Hills and Cuyama Valley will be managed as threatened and endangered species *core* conservation areas (Map 3). Many of the remaining public lands in the Valley Management Area will be managed as threatened and endangered species *corridor* conservation areas. Notable locations with public land that are not included within conservation areas include the oil production areas from McKittrick south through Taft and Maricopa, Freeborn Mountain, San Emigdio, Ventucopa, the upper elevations of the Caliente Range and Taylor Canyon.

Fire Management

-Establish a fire station within the Carrizo Plain Natural Area at the Washburn Ranch or a comparable location. Development may include repair of the existing airstrip. Any decision to select a site other than the Washburn Ranch must be based upon environmental concerns following NEPA analysis or upon fire management needs.

-All wildfires will be suppressed. Intensive fire suppression techniques shall be used in all saltbush areas, taking into consideration the sensitivity of these areas to surface disturbance. This action will minimize the loss of saltbush. Intensive fire suppression techniques shall also be used on all blocks of public land less than 1,000 acres in size, and on all public land within one mile of occupied structures, in order to prevent the loss of life and property. The goal on these lands is to keep 90% of the fires to 10 acres or less.

-Caliente Mountain, Carrizo Plain, and all lands outside of urban interface areas are fire use areas. In such areas fire may be used to improve wildlife and plant habitat, site productivity, watershed protection, and to reduce wildfire loads. Chaparral communities will be managed to maintain a mosaic of different age classes. Any prescribed burns on Caliente Mountain shall be consistent with the objectives for management of the area. Prescribed burns within the Carrizo Plain shall be limited to experiments to determine if any benefits to threatened or endangered species can be derived. If these experiments are successful, burning may be used to facilitate the recovery of these species. All prescribed burns shall be preceded by the preparation of an interdisciplinary burn plan and NEPA analysis.

-Fire fuels management areas include all lands in the management area. If necessary, removal of inflammable vegetation between wildland areas and structures may be accomplished through mechanical means, prescribed burning, or a combination of the two, utilizing the NEPA process to select the best method.

-Blading by bulldozers or similar heavy equipment, as well as off-road travel by any mechanized vehicles may be allowed in culturally and biologically sensitive areas, including ACECs and habitat for Federally listed species, only when absolutely necessary to protect structures, the public, or sensitive resources. Water or retardant drops shall not be used near pictographs.

-All remaining lands shall be conditional suppression areas. Suppression intensity in these areas will vary with conditions occurring at the time of ignition. Suppression intensities may range from intense, where damage to life or property is possible, to light hand tactics, in biologically or culturally sensitive locations.

Minerals, Oil, & Gas

-Developed oil fields in the areas from McKittrick south through Taft and Maricopa, which are specifically excluded from threatened and endangered species conservation areas (Map 3), will have the review of applications for routine oil and gas production activities facilitated and expedited. An interdisciplinary activity plan which will include specific procedures for processing applications, and a comprehensive mitigation program, will be prepared for those areas. The mitigation program will be consistent with the Kern County HCP to the extent possible while still remaining consistent with regulation and Bureau policy. Compliance with non-discretionary regulations, such as NEPA, ESA and various cultural resources regulations will be accomplished by completing a comprehensive review and consultation on the entire activity plan.

-Develop memoranda of understanding with military bases to provide for leasing for oil and gas.

Recreation

-The OHV designation for all public lands in the management area is "limited".

Management Actions Common to All Alternatives

Air Quality

Inventory roads to determine the number of miles by type, extent of use, and silt fraction in order to bring us in line with the San Joaquin Valley Air Basin Non-attainment Area Plan.

Biological Resources

-Combine existing activity plans (AMP's, HMP's, RMP's etc.) for public lands within NCLWMAs into interdisciplinary activity plans.

Lands

-Land that is of significant public interest but is inaccessible, will have public access acquired on a case-by-case basis. Access may be controlled if limits are needed to protect sensitive resources. Administrative and public vehicle access will be acquired to Goose Lake and the Duck Pond. Administrative access to Blue Stone Ridge / Orchard Peak and Hubbard Hill / Freeborn Mountain will be obtained. Administrative access shall continue to be handled elsewhere on a case-by-case basis through the use of reciprocal ROWs and MOUs.

Minerals, Oil, & Gas

-Develop and implement a policy for testing and abandonment of shut-in wells.

-Investigate MOU with CDOG to ensure that environmental clearances are conducted prior to lease cleanup projects.

-Coordinate with oil and gas lessees to identify and eliminate extraneous roads, or identify those roads requiring FLPMA authorizations.

Recreation

-Sign and develop Backcountry Byways.

-Study the suitability of Soda Lake for wild and scenic river status.

Alternative 1 - No Action (Continuation of Present Management)

Objectives

1. Improve management effectiveness through land acquisition, exchange, or disposal. Obtain lands with high resource values either through purchase, or through the exchange of parcels with low resource values.

2. Continue oil and gas leasing and allow exploration and production, while providing for appropriate levels of protection for sensitive resources.

3. Provide for livestock grazing while minimizing residual impacts to sensitive resources.

Land Use Allocations

ACECs

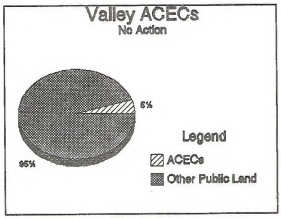


Figure 19

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 13. Appendix A-3 also shows necessary support actions.

ACEC	Terms and Conditions											
	1	2	3	4	5	6	7	8	9	10	11	12
San Andreas Fault Scarp	X				X		X		X		X	
Elkhorn Plain	X				X		X		X		X	
Soda Lake		X	X	X		X		X	X		X	
Goose Lake	X							X		X	X	
Chico Martinez									X			X

ACEC Terms and Conditions

1. The ACEC is open for the leasing of oil, gas, and geothermal resources subject to major constraints.
2. The ACEC is open for the leasing of oil and gas subject to No Surface Occupancy.
3. The ACEC is open to leasing for solid leasable minerals, subject to major constraints.
4. The ACEC is closed to mineral material disposal.
5. All mining plans of operation shall be compatible with the ACEC objectives. Residual impacts to sensitive resources shall be compensated.
6. Soda Lake and the surrounding wetlands shall be proposed to be withdrawn from the general mining laws.
7. Livestock grazing shall be managed to foster restoration and enhancement of plant communities and listed plant and animal species.
8. The ACEC is closed to livestock grazing.
9. Public access off designated routes of travel is restricted to pedestrian and equestrian access.
10. Public access off designated routes of travel is restricted to pedestrian access.
11. These lands shall be managed under Class II VRM guidelines.
12. These lands shall be managed under Class III VRM guidelines.

Table 13

San Andreas Fault Scarp RNA/ACEC

The San Andreas Fault Scarp Research Natural Area (RNA) was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the RNA encompasses approximately 1,350 acres of public land. The ACEC will be managed to preserve and protect the topographic expression of the San Andreas Fault.

Elkhorn Plain ACEC

-The Elkhorn Plain ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompasses approximately 9,190 acres of public land. This ACEC shall be managed for the protection of highly significant habitat for Federally and State listed species, including the San Joaquin kit fox, blunt-nosed leopard lizard, and giant kangaroo rat.

Soda Lake ACEC

-The Soda Lake ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined the ACEC encompasses approximately 2,970 acres of public land. The Soda Lake Area of Critical Environmental Concern is managed for the protection of sensitive plant, animal, cultural resources, and Native American traditional lifeway values.

Goose Lake ACEC

The Goose Lake ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompasses 40 acres of public land. This ACEC is managed for the protection of the rare alkali sink vegetation, habitat for numerous shorebirds and raptors, and the protection of cultural resources.

Chico Martinez RNA/ACEC

-The Chico Martinez Research Natural Area encompasses 1,430 acres of public land and reserved mineral estate. This area is managed to protect significant paleontological resources, as well as the type locations for a number of members of geologic formations including the following: the Zemorrian Stage; within the Monterey Shale, the Gould Shale member, and the reference section of the McLure Shale member; within the Temblor Formation the Button bed member, the Carneros Sandstone member and the Phacoides sand member.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion as being impacted. Land acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas or lands identified by this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Any leasing of minerals underlying lands acquired as compensation may occur subject to No Surface Occupancy stipulations or other major constraints.

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless otherwise specified in this plan, threatened and endangered species range will be available for oil, gas, and geothermal leasing subject to major constraints.

General

The Carrizo Plain Natural Area shall be managed for the protection and restoration of sensitive plant, animal, cultural, and geologic resources, for the preservation of a representative sample of the historic southern San Joaquin Valley flora and fauna, and for the proper use of public lands for outdoor recreation purposes.

Grazing

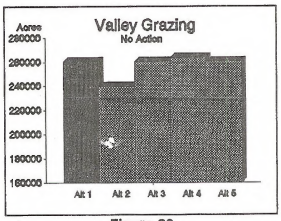


Figure 20

-Livestock grazing shall be authorized on 260,231 acres of public land in 51 allotments at levels shown in Appendix D-1. Allotments will be managed at the minimum residual mulch levels shown in Appendix D-1. Utilization of perennial species will be allowed up to 50% of the current annual year's growth. Future adjustments shall be based on monitoring data or new information regarding the occurrence of threatened or endangered species.

-Allotments within potential habitat for any species listed as threatened or endangered by the USF&WS shall be managed at 500 pounds per acre of minimum residual mulch. When an allotment contains known areas of Giant Kangaroo Rats, grazing will be allowed only during 6/15 - 3/31. When an allotment is located within a threatened and endangered species conservation area for *Eriastrum hooveri, Caulanthus californicus, or Lembertia congdonii,* or has known occurrences of

Eriastrum hooveri, grazing will be allowed only during 5/1 - 2/14. Livestock grazing will be suspended on 3,432 acres of public land in seven allotments due to the known presence of *Eremalche kernensis, Lembertia congdonii, or Caulanthus californicus*. Further suspensions may be made based on monitoring data or new information regarding the known occurrence of threatened or endangered species.

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 14,000 acres of mostly small and isolated parcels shall remain available for disposal (Appendix C-4). Lands may be acquired to facilitate management. Emphasis shall be placed on acquisition of high resource value lands, such as WSA inholdings, Carrizo Plain, Goose Lake, and the Lokern area.

-Utility corridors throughout the management area have not been designated. New rights-of-way are authorized on a case-by-case basis following NEPA analysis. Special terms and conditions are applied in those areas where threatened and endangered species, cultural resources, or other resource values may be impacted. Previously disturbed areas and existing routes are to be used whenever possible.

-Proposals for wind energy development will be considered on a case-by-case basis.

-Existing, designated communication sites are listed in Appendix C-2. Authorization for new sites will be considered on a case-by-case basis.

-All public land that has been classified as critical or essential condor habitat will be considered for disposal only after formal consultation with the U.S. Fish and Wildlife Service.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

Leasable Minerals (including Oil & Gas)

-Approximately 24,000 acres of mineral estate (6%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on about 411,000 acres (94%) within certain ACECs, and threatened and endangered species habitat.

-No areas are closed to leasing of oil, gas and geothermal resources.

-About 31,000 acres of Federal mineral estate (7%) are open to development of other leasable minerals under standard terms and conditions. Leases will be subject to major constraints on an additional 364,000 acres (84%) within threatened and endangered species habitat and certain ACECs. An additional 39,000 acres (9%) are closed to other leasable minerals.

-Mineral leasing and sale on 17,300 acres of land within threatened and endangered species habitat administered by the Department of Defense will be subject to major constraints designed to protect those species. These lands will also be subject to stipulations designed to protect their military mission.

Mineral Materials

-About 11,000 acres of Federal mineral estate (3%) are open to development of mineral materials under standard terms and conditions. Sales will be subject to major constraints on 419,000 acres (97%) within threatened and endangered species habitat and ACECs Approximately 3,000 acres (61%) are closed to extraction of mineral materials.

Locatable Minerals

ACECs encompassing 2,700 acres (1%) are proposed for withdrawal from the mining laws. The remainder of the area will remain open to the locations of claims.

Recreation

-Vehicle use by the public is restricted to designated routes of travel within the Carrizo Plain Natural Area, and to existing roads elsewhere. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-Overnight camping in the CPNA (Carrizo Plains Natural Area) is limited to designated sites (the old KCL Ranch and the Selby Parking Area).

Management Actions

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, the Carrizo CRMP, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Alternative 2 - Natural Resource Protection

Objectives

1. Enhance resource management through land acquisition, exchange, or disposal. Lands with high resource values may be obtained either through purchase, or through the exchange of parcels with low resource values.

2. Allow oil and gas leasing, exploration, and production in areas where residual impacts to sensitive resources are minimal.

3. Emphasize protection and recovery of sensitive resources while providing for livestock grazing only where residual impacts to sensitive resources are minimal.

Land Use Allocations

ACECs

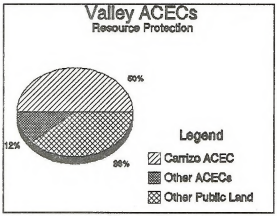


Figure 21

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 14a, 14b. Appendix A-3 also shows necessary support actions.

Carrizo Plain ACEC

-Designate public lands and reserved mineral estate, encompassing 156,400 acres of public land and 13,200 acres of reserved mineral estate, as the Carrizo Plain Area of Critical Environmental Concern. The Carrizo Plain ACEC will encompass and replace the Elkhorn Plain ACEC, Soda Lake ACEC and San Andreas Fault Scarp RNA/ACEC, all of which were designated in 1984. It shall also include portions of Caliente Mountain. The Carrizo Plain ACEC shall be managed for the protection of sensitive plant, animal, cultural, and geologic resources, as well as Native American traditional lifeway values.

Lokern ACEC

Designate 3,040 acres of public land and 3400 acres of reserved mineral estate as the Lokern Area of Critical Environmental Concern for the protection of listed plant and animal species.

Alkali Sink ACEC

-Designate 442 acres of public land as the Alkali Sink Area of Critical Environmental Concern. This ACEC will be managed to protect the rare alkali sink plant community and habitat for State and Federally listed plants and animals.

Blue Stone Ridge ACEC

-Designate the Blue Stone Ridge/Orchard Peak area as an ACEC encompassing 2,570 acres of public land and 2,830 acres of reserved mineral estate. The Blue Stone Ridge ACEC shall be managed to protect biodiversity, hollisteria (*Hollisteria lanata*), and the blunt nosed leopard lizard (*Gambelia silus*). Prairie falcon and the oval-leaved snapdragon (*Antirrhinum ovatum*) may also occur here and will be protected if discovered.

Goose Lake ACEC

The Goose Lake ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompasses 40 acres of public land. This ACEC is managed for the protection of the rare alkali sink vegetation, habitat for numerous shorebirds and raptors, and the protection of cultural resources.

Chico Martinez RNA/ACEC

-The Chico Martinez (formerly called the Reef Ridge) Research Natural Area / ACEC encompasses 3,200 acres of public land and 1,400 acres of reserved mineral estate.

This area is managed to protect significant paleontological resources, as well as the type locations for a number of members of geologic formations including the following: the Zemorrian Stage; within the Monterey Shale, the Gould Shale member and the reference section of the McLure Shale member; within the Temblor Formation the Button bed member, the Carneros Sandstone member and the Phacoides sand member.

Kettleman Hills ACEC

-Designate the Kettleman Hills area as an ACEC encompassing 6,720 acres of public land and 5,780 acres of reserved mineral estate. The Kettleman Hills ACEC shall be managed to protect significant paleontological values and wildlife habitat for Federally listed species.

Buena Vista Valley ACEC

-The Buena Vista Valley, encompassing 20,820 acres of public land and 12,940 acres of reserved mineral estate, merits special management attention due to the presence of threatened and endangered species in an area with extremely valuable mineral resources. These lands will be managed to serve as a threatened and endangered species conservation area system for listed species. Any areas of public land identified as important for the recovery of threatened and endangered species in future or updated recovery plans will be managed in a similar manner. If the USF&WS determines that these areas are no longer considered important for the recovery of threatened and endangered species, management may be modified.

Bittercreek ACEC

-Public lands within the Bittercreek National Wildlife Refuge, encompassing 960 acres of public land and 4,400 acres of subsurface minerals, merit special management attention due to the presence of threatened and endangered species. This region also has potential for the occurrence of cultural resources along the drainages. These lands will be managed to serve as a threatened and endangered species conservation area, as well as for the protection of cultural resources. Any additional areas of public land identified as important for the recovery of threatened and endangered species in future or updated recovery plans will be managed in a similar manner. If the USF&WS determines that these areas are no longer considered important for the recovery of threatened and endangered species, management may be modified.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion as being impacted. Land acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas, which are identified in this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-retention in Federal ownership, and closure to disposal under the land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-these lands will not be opened to operation of the mining laws, will be closed to all forms of mineral leasing, and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate. They will also be closed to mineral material disposal;

ACEC	Terms and Conditions																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Carrizo Plain			X				X	X				X		X				X	
Lokern			X	X							X		X				X		X
Alkali Sink			X								X		X				X		X
Blue Stone Ridge			X		X					X			X		X				
Goose Lake			X								X		X				X		X
Chico Martinez	X								X				X						
Kettleman Hills	X								X										
Buena Vista Valley	X					X			X							X			
Bittercreek	X								X										
Terms & Cond.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	
Carrizo Plain	X		X								X			X			X	X	
Lokern		X		X							X								
Alkali Sink		X	X			X				X			X						
Blue Stone Ridge	X			X							X								
Goose Lake		X	X			X				X			X						
Chico Martinez	X			X							X				X				
Kettleman Hills					X						X				X				
Buena Vista Valley	X				X		X		X										
Bittercreek	X		X					X			X								

Table 14a

-public access off designated routes of travel is restricted to pedestrian access only, and camping is prohibited;

-closed to livestock grazing unless research shows grazing is necessary to reach management objectives; and

-closed to vegetative material collection.

ACEC Terms and Conditions

1. The ACEC is open for the leasing of oil, gas, and geothermal resources subject to major constraints.
2. The ACEC is open for the leasing of oil and gas subject to No Surface Occupancy.
3. The ACEC is closed to oil, gas, and geothermal leasing.
4. No geophysical exploration shall be allowed.
5. The disposal of mineral materials is subject to major constraints. The extraction of mineral materials for road maintenance within the ACEC may be permitted.
6. The disposal of mineral materials is limited to roadsides, previously disturbed land, and sites suitable for effective rehabilitation.
7. Disposal of mineral materials is limited to areas where there would be no residual impacts to sensitive resources. No disposals may occur along the San Andreas Fault or at Soda Lake.
8. Those portions of the ACEC east of the Caliente Mountain ridgeline are closed to leasing for solid leasable minerals. Those lands west of the ridgeline are open subject to major constraints.
9. The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints.
10. The ACEC is closed to the leasing of solid leasable minerals.
11. The ACEC is closed to the leasing of solid leasable minerals and to the sale of mineral materials.
12. Soda Lake and surrounding wetlands, as well as research and monitoring locations shall be withdrawn from the mining laws. In all other areas, all mining plans of operation must be compatible with the ACEC objectives, and residual impacts to sensitive resources must be compensated.
13. All public land within the ACEC shall be proposed for withdrawal from the mining laws.
14. Livestock grazing shall be managed to foster restoration and enhancement of plant communities and listed plant and animal species.
15. Those portions of the ACEC outside of existing grazing allotments shall remain unavailable to grazing.
16. The ACEC is closed to new grazing authorizations.
17. The ACEC is closed to livestock grazing.
18. Camping within the CPNA is restricted to designated locations.
19. No camping is permitted within the ACEC.
20. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
21. Public access off designated routes of travel is restricted to pedestrian access only.
22. These lands shall be managed under Class II VRM guidelines.
23. These lands shall be managed under Class III VRM guidelines.
24. These lands shall be managed under Class IV VRM guidelines.
25. Water diversions are prohibited.
26. Land in Sec. 28, T. 32 S., R. 24 E., MDB&M and Sec. 9, T. 11 N., R. 24 W., SBB&M shall remain available for disposal. All other lands shall be retained in public ownership.
27. These lands shall be retained in public ownership. They may be withdrawn to the USF&WS.
28. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
29. This ACEC is a right of way exclusion area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
30. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
32. Collection of vegetative materials within the ACEC requires a permit.
33. The San Andreas Fault will continue to be managed as a Research Natural Area. Scientific trenching along the San Andreas Fault will be allowed by permit only.
34. Casual collection of invertebrates is limited to those found on the surface. Collecting vertebrate fossils requires a permit.
35. The collection of vertebrate fossils requires a permit.
36. Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.
37. Designation of any of these lands as wilderness shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wilderness Management Policy.

Table 14b

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless otherwise specified in this plan, threatened and endangered species range will be available for oil, gas, and geothermal leasing subject to major constraints.

Grazing

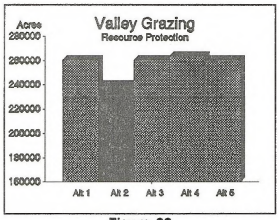


Figure 22

-Livestock grazing shall be authorized on 239,794 acres of public land in 38 allotments at levels shown in Appendix D-1. Utilization of saltbush will be allowed up to 20% of the current annual year's growth and up to 40% on other perennial species. As shown in Appendix D-1, grazing will be allowed only during the "green season" of 12/1 - 4/1 for allotments classified as annual or annual-perennial, or only during 11/1 - 5/31 in allotments classified as perennial.

-Allotments within potential habitat for any species listed as threatened or endangered by the USF&WS shall be managed at 700 pounds per acre of minimum residual mulch. When an allotment is located within potential habitat for *Eriastrum hooveri, Lembertia congdonii, or Caulanthus californicus*, grazing should be allowed only during 6/1 - 10/31. This season conflicts with the overall "green" season of use imposed above and thus, no grazing will be authorized on those allotments within potential habitat for these species until new information regarding the occurrence of these species shows future adjustments are allowable. Livestock grazing will be suspended on 24,219 acres of public land in seventeen allotments due to the known presence of, or its location within a threatened and endangered species conservation area for *Eremalche kernensis, Lembertia congdonii, Caulanthus californicus, Eriastrum hooveri or Opuntia treleasei,* or due to seasonal restriction conflicts. Future adjustments shall be based on monitoring data or new information regarding the occurrence of threatened or endangered species.

-No new grazing allotments will be authorized. Presently unalloted land, suitable for grazing, will remain unavailable.

Lands

-A total of 4,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the preferred method of disposal. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales shall be used only in special circumstances.

-Acquisition, through exchange or purchase, shall target lands with high resource values including lands within ACECs, NCLWMAs, WSAs, threatened and endangered species conservation areas, or with high paleontological values.

-All public land that has been classified as critical condor habitat or essential condor habitat will be retained in public ownership until the U.S. Fish and Wildlife Service removes such classification from the parcels.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated pathways, and communication lines for interstate use.

-New right-of-way authorizations within designated corridors will require NEPA

analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-Avoidance Areas include the following: all ACEC's except Goose Lake and Alkali Sink, lands identified as available for disposal, and Wild & Scenic Rivers.

-Exclusion Areas include the following: WSA's, Wilderness Areas, Goose Lake ACEC, and Alkali Sink ACEC.

-New proposals for wind energy development will not be considered.

-Designated communication sites are limited to those listed in Appendix C-2.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

Leasable Minerals (including Oil & Gas)

-Approximately 19,000 acres of mineral estate (4%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on about 302,000 acres (70%) within certain ACECs corridors eligible for Wild and Scenic River Designation, on lands managed under VRM Class II, and threatened and endangered species habitat.

-ACECs and designated wild and scenic rivers, encompassing 112,000 acres (26%) are closed to leasing of oil, gas and geothermal resources.

-About 31,000 acres of Federal mineral estate (7%) are open to development of other leasable minerals under standard terms and conditions. Leases will be subject to major constraints on 318,000 acres (73%) within threatened and endangered species habitat and ACECs. Certain ACECs encompassing 85,000 acres (20%) are closed to other leasable minerals.

-Mineral leasing and sale on 17,300 acres of land within threatened and endangered species habitat administered by the Department of Defense will be subject to major constraints designed to protect those species. These lands will also be subject to stipulations designed to protect their military mission.

Mineral Materials

-About 11,000 acres of Federal mineral estate (3%) are open to development of mineral materials under standard terms and conditions. Sales will be subject to major constraints on an additional 413,000 acres (95%) within threatened and endangered species habitat and ACECs. Other ACECs encompassing 9,000 acres (2%) are closed to mineral material extraction.

Locatable Minerals

ACECs encompassing 18,000 acres (4%) are proposed for withdrawal from the mining laws, while remaining lands will remain open to the location of claims.

Recreation

-All public lands in the management area are designated as "limited" to OHV use. Portions or all of any ACEC may be designated as "closed" following preparation of activity management plans for those areas.

-In areas designated as "limited", vehicle use by the public is restricted to designated routes

of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-The Soda Lake - Elkhorn Plains Loop Road is designated as a Backcountry Byway.

-The Painted Rock parking area, trail and rock, oilfield facilities, the area around Soda Lake, and the Poso Creek area (E½NE¼, Sec. 32, T. 27 S., R. 27 E., MDB&M), shall be closed to shooting for public safety.

-Land within wilderness study areas that is released from further study shall be managed to maintain and protect primitive values.

Management Actions

-Acquire land with significant paleontological values, including but not limited to the Round Mountain area, Maricopa Tar Pits, and McKittrick Tar Pits, should landowners be interested in selling.

-Pursue development of a CMA with interested parties for the protection, study, and interpretation of paleontological resources on public land.

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, the Carrizo CRMP, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

Alternative 3 - Administrative Adjustments

Objectives

1. Improve management effectiveness and increase the availability of public lands to the public, through land acquisition, exchange, or disposal. Lands with high resource values may be obtained either through purchase, or through the exchange of parcels with low resource values.

2. Encourage oil and gas leasing, exploration, and production while minimizing residual impacts to sensitive resources.

3. Provide for livestock grazing while minimizing residual impacts and providing for the protection and recovery of sensitive resources.

Land Use Allocations

ACECs

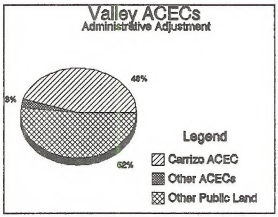


Figure 23

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 15a, 15b. Appendix A-3 also shows necessary support actions.

Carrizo Plain ACEC

-Designate public land and reserved mineral estate encompassing 140,650 acres of public land and 13,200 additional acres of reserved mineral estate, as the Carrizo Plain Area of Critical Environmental Concern. The Carrizo Plain ACEC will encompass and replace the Elkhorn Plain, Soda Lake, and San Andreas Fault ACECs. This ACEC shall be managed for the protection of sensitive plant, animal, cultural, and geologic resources, as well as Native American traditional lifeway values.

Lokern ACEC

-Designate 3040 acres of public land and 3400 acres of reserved mineral estate as the Lokern Area of Critical Environmental Concern for the protection of listed plant and animal species.

Alkali Sink ACEC

-Designate 442 acres of public land as the Alkali Sink Area of Critical Environmental Concern. This ACEC will be managed to protect the rare alkali sink plant community and habitat for State and Federally listed plants and animals.

Blue Stone Ridge ACEC

-Designate the Blue Stone Ridge/Orchard Peak area as an ACEC encompassing 2,573 acres of public land and 2,833 acres of reserved mineral estate. The Blue Stone Ridge ACEC shall be managed to protect biodiversity, hollisteria (*Hollisteria lanata*), and the blunt nosed leopard lizard (*Gambelia silus*). Prairie falcon and the oval-leaved snapdragon (*Antirrhinum ovatum*) may also occur here and will be protected if discovered.

Goose Lake ACEC

The Goose Lake ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompasses 40 acres of public land. This ACEC is managed for the protection of the rare

ACEC	Terms and Conditions														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Carrizo Plain			X		X				X		X		X		
Lokern	X			X		X									X
Alkali Sink		X								X		X			X
Blue Stone Ridge	X						X							X	
Goose Lake		X								X		X			X
Chico Martinez	X							X							
Terms & Cond.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
Carrizo Plain	X		X		X			X		X			X	X	
Lokern		X	X			X		X							
Alkali Sink		X		X	X		X	X		X					
Blue Stone Ridge			X			X			X						
Goose Lake		X		X	X		X	X		X					
Chico Martinez			X			X		X				X			

Table 15a

alkali sink vegetation, habitat for numerous shorebirds and raptors, and the protection of cultural resources.

Chico Martinez RNA/ACEC

-The Chico Martinez (formerly called the Reef Ridge) Research Natural Area/ACEC encompasses 3,200 acres of public land and 1,400 acres of reserved mineral estate.

This area is managed to protect significant paleontological resources, as well as the type locations for a number of members of geologic formations including the following: the Zemorrian Stage; within the Monterey Shale, the Gould Shale member and the reference section of the McLure Shale member; within the Temblor Formation the Button bed member, the Carneros Sandstone member and the Phacoides sand member.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion as being impacted. Land acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas, which are generally identified by this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-these lands will be retained in Federal ownership and closed to disposal under the general land laws;

-ROW authorizations, land use permits,

ACEC Terms and Conditions

1. The ACEC is open for the leasing of oil, gas, and geothermal resources subject to major constraints.
2. The ACEC is open for the leasing of oil, gas, and geothermal resources subject to No Surface Occupancy.
3. The ACEC is open for the leasing of oil, gas, and geothermal resources subject to major constraints; Soda Lake in open for leasing subject to NSO.
4. If a suitable mineral materials site cannot be found outside of the ACEC, sales of mineral materials may be authorized at the site of the old Elk Hill Community pit in the NW¼ Sec. 2, T. 30 S., R. 22 E., MDB&M. As part of the reclamation fee, a compensation fee will be collected.
5. Disposal of mineral materials is limited to areas where there would be no residual impacts to sensitive resources. No disposals may occur along the San Andreas Fault or at Soda Lake.
6. The ACEC is open to leasing for solid leasable minerals subject to major constraints.
7. The leasing of solid leasable minerals and disposal of mineral materials may occur where compatible with ACEC objectives and where residual impacts to sensitive resources are minimal and can be compensated.
8. The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints.
9. The ACEC is closed to the leasing of solid leasable minerals.
10. The ACEC is closed to the leasing of solid leasable minerals and to the sale of mineral materials.
11. Soda Lake and surrounding wetlands shall be withdrawn from the mining laws. In all other areas, all mining plans of operation must be compatible with the ACEC objectives, and residual impacts to sensitive resources must be compensated.
12. All public land within the ACEC shall be proposed for withdrawal from the mining laws.
13. Livestock grazing shall be managed to foster restoration and enhancement of plant communities and listed plant and animal species.
14. Those portions of the ACEC outside of existing grazing allotments shall remain unavailable to grazing.
15. The ACEC is closed to livestock grazing.
16. Camping is restricted to designated locations.
17. No camping is permitted within the ACEC.
18. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
19. Public access off designated routes of travel is restricted to pedestrian access only.
20. These lands shall be managed under Class II VRM guidelines.
21. These lands shall be managed under Class III VRM guidelines.
22. Water diversions are prohibited.
23. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
24. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that are compatible with ACEC objectives and where residual impacts to sensitive resources are minimal and can be compensated.
25. Collection of vegetative materials within the ACEC requires a permit.
26. The San Andreas Fault will continue to be managed as a Research Natural Area. Scientific trenching along the San Andreas Fault will be allowed by permit only.
27. Casual collection of invertebrates is limited to those found on the surface. Collecting vertebrate fossils requires a permit.
28. Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.
29. Designation of any of these lands as wilderness shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wilderness Management Policy.

Table 15b

R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-these lands will not be opened to operation of the mining laws and will be

proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate.

-the area shall be open to leasing of oil, gas, and geothermal resources subject to NSO or other major constraints;

-public access off designated routes of travel is restricted to pedestrian and equestrian access only.

-camping is restricted to designated locations;

-livestock grazing will be managed to foster restoration and enhancement of plant communities and listed plant and animal species.

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless otherwise specified elsewhere in this plan, threatened and endangered species range will be available for oil, gas, and geothermal leasing subject to major constraints.

General

-The Buena Vista Valley, encompassing 20,820 acres of public land and 12,940 acres of subsurface minerals, merits special management attention due to the presence of threatened and endangered species. These lands will be managed to serve as a threatened and endangered species conservation area. Any additional areas of public land identified as important for the recovery of threatened and endangered species in future or updated recovery plans will be managed in a similar manner. If the USF&WS, through development or updating of recovery plans, determines that this location is no longer considered to be a threatened and endangered species conservation area, management may be modified. Special management terms and conditions for these areas include:

-The area is open to leasing of oil, gas, and geothermal resources subject to major constraints.

-These lands are available for the leasing of solid leasable minerals subject to major constraints.

-The disposal of mineral materials is limited to roadsides, previously disturbed land, and sites suitable for effective rehabilitation.

-Land in Sec. 28, T. 32 S., R. 24 E., MDB&M and Sec. 9, T. 11 N., R. 24 W., SBB&M shall remain available for disposal. All other lands shall be retained in public ownership.

-Acquire lands with high resource values as available.

-An interdisciplinary plan shall be prepared to address cultural resources, T & E species, oil and gas development, hazardous materials, and livestock grazing.

-Public land within the Bittercreek National Wildlife Refuge, encompassing 960 acres of public land and 4,400 acres of subsurface minerals, merits special management attention due to the presence of threatened and endangered species. These lands will be managed to serve as a threatened and endangered species conservation area. If the USF&WS, through development or updating of recovery plans, determines that this location is no longer considered important for the recovery of threatened and endangered species conservation, management may be modified. Special management terms and conditions for these areas include:

-The area is open to leasing of oil, gas, and geothermal resources subject to major constraints.

-The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints.

-An MOU will be developed with the USF&WS for the cooperative management

of these lands, including grazing authorizations.

-Those portions of Caliente Mountain outside of the Carrizo Plain ACEC shall be managed to protect paleontologic resources, biodiversity, scenic values, sensitive plant species, deer, upland game (including quail and chukar), and habitat for State and Federally listed plant and animal species.

-The above area shall be managed under major constraints for oil, gas, and geothermal leasing.

-Manage the Kettleman Hills area, encompassing 6,680 acres of public land and 2,680 acres of mineral estate within Section 34, T. 21 S., R. 17 E. (those portions in King's County); Sections 2, 4, 8, 10, 12, 14, and 24, T. 22 S., R. 17 E., (within King's County); Sections 6, 8, 18, 20, 22, 26, 28, 30, 32, 34; T. 22 S., R. 18 E., Sections 2, 4, 10, and 12; T. 23 S., R. 18 E., Section 6, T. 23 S., R. 19 E., MDB&M, to protect significant paleontological values and wildlife habitat for Federally listed species. Special management terms and conditions for area include:

-These lands are open to leasing of oil, gas, and geothermal resources subject to major constraints.

-Land use authorizations shall require use of previously disturbed land wherever feasible. This area is unavailable for R&PP leasing.

Grazing

-Livestock grazing shall be authorized on 260,231 acres of public land in 51 allotments at the levels shown in Appendix D-1. Allotments shall be managed at the minimum residual mulch levels shown in the Appendix D-1. Utilization of perennial species will be allowed up to 50% of the current annual year's growth and up to 20% on saltbush. In allotments that contain saltbush scrub, grazing will be allowed only during 12/1 - 5/31 and only during 11/1 - 5/31, in riparian areas.

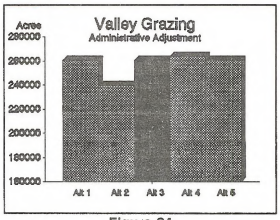


Figure 24

Future adjustments shall be based on monitoring data or new information regarding the occurrence of threatened or endangered species.

-Allotments with the known presence of *Erlastrum hooveri* or *Opuntia treleasei* or within the potential habitat for any species listed as threatened or endangered by the USF&WS shall be managed at 500 pounds per acre of minimum residual mulch. When an allotment is located within a threatened and endangered species conservation area for *Erlastrum hooveri*, grazing will be allowed only during 6/1 - 2/14, and only during 5/1 - 2/14 if located within a threatened and endangered species conservation area for *Lembertia congdonii or Caulanthus californicus.* If an allotment contains known areas of Giant Kangaroo Rats, grazing will be allowed only during 6/15 - 4/1. If the combination of any special seasonal restrictions totally excludes the possibility of livestock use, then no authorization will be made. Livestock grazing will be suspended on 3,432 acres of public land in seven allotments due to the known presence of *Eremalche kernensis, Lembertia congdonii, Caulanthus californicus, or Opuntia treleasei* and seasonal restriction conflicts. Further suspensions may be made based on monitoring data or new information regarding the known occurrence of threatened or endangered species.

-New grazing allotments may be authorized if

residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 26,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the preferred method of disposal. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales shall be used only in special circumstances.

-Acquisitions, through exchange or purchase, shall target lands with high resource values including lands within ACECs, the Caliente Mountain WSA, NCLWMAs, or threatened and endangered species conservation areas.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated pathways, and communication lines for interstate use.

-New right-of-way authorizations within designated corridors will require NEPA analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-Avoidance Areas include the following: ACECs, and lands identified available for disposal, and Wild & Scenic Rivers.

-Exclusion Areas include the following: WSA's and Wilderness Areas.

-Proposals for wind energy development may be considered, on a case-by-case basis, on lands outside of ACECs, SRMA's, wilderness areas, and wilderness study areas.

-Existing, designated communication sites are listed in Appendix C-2. Authorization for new sites will be considered on a case-by-case basis.

-All public land that has been classified as critical condor habitat will remain in public ownership. All public land that has been classified as essential condor habitat will be considered for disposal only after formal consultation with the U.S. Fish and Wildlife Service.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

Leasable Minerals (Including Oil & Gas)

-Approximately 18,000 acres of mineral estate (4%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on about 417,000 acres (96%) within certain ACECs, within corridors eligible for Wild and Scenic River Designation, and threatened and endangered species habitat.

-Any waters designated as wild or scenic will be closed to leasing of oil, gas and geothermal resources; no other areas are closed.

-About 31,000 acres of Federal mineral estate (7%) are open to development of other leasable minerals under standard terms and

conditions. Leases will be subject to major constraints on 330,000 acres (76%) within threatened and endangered species habitat and within certain ACECs. ACECs encompassing 73,000 acres (17%) are closed to other leasable minerals.

-Mineral leasing and sale on 17,300 acres of land within threatened and endangered species habitat administered by the Department of Defense will be subject to major constraints designed to protect those species. These lands will also be subject to stipulations designed to protect their military mission.

Mineral Materials

-About 7,000 acres of Federal mineral estate (2%) are open to development of mineral materials under standard terms and conditions. Sales will be subject to major constraints on 421,000 acres (97%) within threatened and endangered species habitat and ACECs. ACECs encompassing 5,000 acres (1%) are closed to mineral material extraction.

Locatable Minerals

ACECs encompassing 3,000 acres (1%) are proposed for withdrawal from the mining laws.

Recreation

-All public lands in the management area are designated as "limited" to OHV use. In areas designated as "limited", vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-The Soda Lake - Elkhorn Plains Loop Road is designated as a Backcountry Byway.

-The Painted Rock parking area, trail and rock, oilfield facilities, the area around Soda Lake within the area bounded by Seven Mile Road, Soda Lake Road, Elkhorn Plain Road and San Diego Creek Road, and the Poso Creek area (E½NE¼, Sec. 32, T. 27 S., R. 27 E., MDB&M), shall be closed to shooting for public safety.

Management Actions

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, the Carrizo CRMP, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

-Post boundaries of ACEC's.

Alternative 4 - Development Emphasis

Objectives

1. Improve management effectiveness through land acquisition, exchange, or disposal, while retaining significant resource values and areas of high mineral potential.

2. Encourage oil and gas leasing, exploration, and production while providing for protection of sensitive resources.

3. Increase opportunities for livestock grazing while providing protection of sensitive species.

Land Use Allocations

ACECs

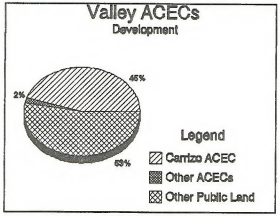


Figure 25

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 16. Appendix A-3 also shows necessary support actions.

Carrizo Plain ACEC

-Designate public lands and reserved mineral estate, encompassing 140,650 acres of public land and 13,200 additional acres of reserved mineral estate, as the Carrizo Plain Area of Critical Environmental Concern. The Carrizo Plain ACEC will encompass and replace the Elkhorn Plain ACEC, Soda Lake ACEC and San Andreas Fault Scarp RNA/ACEC, all of which were designated in 1984. The Carrizo Plain ACEC shall be managed for the protection of sensitive plant, animal, cultural, Native American traditional lifeway values, and geologic resources.

Lokern ACEC

-Designate 3040 acres of public land and 3400 acres of reserved mineral estate the Lokern Area of Critical Environmental Concern for the protection of listed plant and animal species.

Alkali Sink ACEC

-Designate 442 acres of public land as the Alkali Sink Area of Critical Environmental Concern. This ACEC will be managed to protect the rare alkali sink plant community and habitat for State and Federally listed plants and animals.

Goose Lake ACEC

-The Goose Lake ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompasses 40 acres of public land. This ACEC is managed for the protection of the rare alkali sink vegetation, habitat for numerous shorebirds and raptors, and the protection of cultural resources.

Chico Martinez RNA/ACEC

-The Chico Martinez (formerly called the Reef Ridge) Research Natural Area / ACEC encompasses 3,200 acres of public land and 1,400 acres of reserved mineral estate.

This area is managed to protect significant paleontological resources, as well as the type locations for a number of members of geologic formations including the following: the Zemorrian Stage; within the Monterey Shale, the Gould Shale member and the reference

ACEC	Terms and Conditions															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Carrizo Plain	X	X		X		X		X			X		X		X	X
Lokern			X		X	X		X			X					
Alkali Sink			X		X		X	X		X	X	X				
Goose Lake			X		X		X	X	X		X	X				
Chico Martinez						X		X			X			X		

ACEC Terms and Conditions

1. Soda Lake and surrounding wetlands shall be available for oil, gas, and geothermal leasing subject to NSO, shall be closed to the disposal of mineral materials and solid leasable minerals, and shall be proposed for withdrawal from the mining laws. In all other areas, all plans of operation must be compatible with the ACEC objectives, and residual impacts to sensitive resources must be minimal.
2. Livestock grazing shall be managed to foster restoration and enhancement of plant communities and listed plant and animal species.
3. The ACEC is closed to livestock grazing.
4. Camping is restricted to designated locations.
5. No camping is permitted within the ACEC.
6. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
7. Public access off designated routes of travel is restricted to pedestrian access only.
8. These lands shall be managed under Class III VRM guidelines.
9. Water diversions are prohibited.
10. Water diversions may be permitted if the action is compatible with ACEC objectives and impacts to sensitive resources are minimal and can be compensated.
11. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that are compatible with ACEC objectives and where residual impacts to sensitive resources are minimal.
12. Collection of vegetative materials within the ACEC requires a permit.
13. The San Andreas Fault will continue to be managed as a Research Natural Area. Scientific trenching along the San Andreas Fault will be allowed by permit only.
14. Casual collection of invertebrates is limited to those found on the surface. Collecting vertebrate fossils requires a permit.
15. Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.
16. Designation of any of these lands as wilderness shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wilderness Management Policy.

Table 16

section of the McLure Shale member; within the Temblor Formation the Button bed member, the Carneros Sandstone member and the Phacoides sand member.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion as being impacted. Land acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas, which are generally identified in this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these

areas include:

-the area shall be open to leasing of oil, gas, and geothermal resources subject to NSO or other major constraints;

-these lands will not be opened to operation of the mining laws and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate.

-these lands will be retained in Federal ownership and closed to disposal under the general land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-livestock grazing shall be managed to foster restoration and enhancement of plant communities and listed plant and animal species; and

-camping is restricted to designated locations.

General

-The Buena Vista Valley, encompassing 20,820 acres of public land and 12,940 acres of reserved mineral estate, merits special management attention due to the presence of threatened and endangered species. These lands will be managed to serve as a threatened and endangered species conservation area. Any additional areas of public land identified as important for the recovery of threatened and endangered species in future or updated recovery plans will be managed in a similar manner. If the USF&WS, through development or updating of recovery plans, determines that these areas are no longer considered threatened and endangered species conservation areas, management may be modified. Special management terms and conditions for these areas include:

-Land in Sec. 28, T. 32 S., R. 24 E., MDB&M and Sec. 9, T. 11 N., R. 24 W., SBB&M shall remain available for disposal. All other lands shall be retained in public ownership.

-The disposal of mineral materials is limited to roadsides, previously disturbed land, and sites suitable for effective rehabilitation.

-An interdisciplinary plan shall be prepared to address cultural resources, T & E species, oil and gas development, hazardous materials, and livestock grazing.

-Public land within the Bittercreek National Wildlife Refuge, encompassing 960 acres of public land and 4,400 acres of reserved mineral estate, merits special management attention due to the presence of threatened and endangered species. These lands will be managed to serve as a threatened and endangered species conservation area. If the USF&WS, through development of updating of recovery plans, determines that this area is no longer considered to be important for the recovery of threatened and endangered species, management may be modified. Special management terms and conditions include:

-An MOU will be developed with the USF&WS for the cooperative management of these lands, including grazing authorizations.

-These lands shall be retained in public ownership or withdrawn to the USF&WS.

Grazing

-Livestock grazing shall be authorized on 263,664 acres of public land in 52 allotments at levels shown in Appendix D-1. Allotments that had mulch levels identified in previous land use plans will continue to be managed at those levels, as shown in the appendix. Utilization of perennial species in allotments which were in the Temblor-Caliente Management Area of the Coast/Valley EIS or

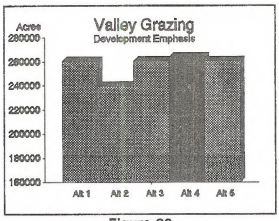


Figure 26

which were classified as perennial or perennial/annual forage allotments in the South Sierra Foothill Monitoring Plan shall be allowed up to 50%. Future adjustments shall be based on monitoring data or new information regarding the occurrence of threatened or endangered species.

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 20,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the preferred disposal method. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales will be used only in special circumstances.

-Acquisitions, through exchange or purchase, shall target lands with high resource values, including lands within ACECs, the Caliente Mountain WSA, or threatened and endangered species conservation areas.

-All public land available for disposal that has been classified as critical condor habitat will be considered for disposal only after formal consultation with the U.S. Fish and Wildlife Service.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated pathways, and communication lines for interstate use.

-New right-of-way authorizations within designated corridors will require NEPA analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-New right-of-way corridors are designated at: l) adjacent to Mocal Road in SE¼ Sec. 22, T. 31 S., R. 22 E., M.D.M.; 2) along the north boundary of the NE¼ Sec. 22, T. 31 S., R. 22 E., M.D.M.; 3) along State Highway 33 in Secs. 30 and 32, T. 29 S., R. 22 E., M.D.M., and Sec. 8 T. 30 S., R. 22 E., M.D.M.

-Avoidance Areas include the following: ACECs, and Wild & Scenic Rivers.

-Exclusion Areas include the following: WSA's, Wilderness Areas.

-Proposals for wind energy development will be considered on a case-by-case basis.

-Existing, designated communication sites are listed in Appendix C-2. Orchard Peak (Sec. 22, T. 25 S., R. 17 E., MDB&M.) is designated as a new site. Designation of other sites will be considered on a case-by-case basis.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges,

except where noted. These other lands are addressed in the Resource Area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

Leasable Minerals (including Oil & Gas)

-Approximately 417,000 acres of mineral estate (96%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints shall be required for oil, gas, or geothermal leasing on 18,000 acres (4%).

-Any waters designated as wild or scenic will be closed to leasing of oil, gas and geothermal resources; no other areas are closed.

-About 430,000 acres of Federal mineral estate (99%) are open to development of other leasable minerals under standard terms and conditions. Leases will be subject to major constraints on 1,000 acres (<1%) within certain ACECs. Approximately 3,000 acres (1%) shall be closed to leasing.

-Lands administered by the Department of Defense, comprising approximately 17,300 acres of mineral estate owned by the United States, are open to leasing with stipulations designed to protect the military mission of the lands involved.

Mineral Materials

-About 431,000 acres of Federal mineral estate (99%) are open to development of mineral materials. Approximately 3,000 acres (1%) are closed to the disposal of other leasable minerals.

Locatable Minerals

ACECs encompassing 3,000 acres (1%) are proposed for withdrawal from the mining laws. All other areas will remain open to location.

Recreation

-The OHV use designation for all public lands in the management area is "limited". In areas designated as "limited", vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-With the assistance of the OHV community, consider a suitable location for an OHV use area according to the criteria listed in Appendix H-1.

-The Soda Lake - Elkhorn Plains Loop Road is designated as a Backcountry Byway.

-The Painted Rock parking area, trail and rock, oilfield facilities, the area around Soda Lake within the area bounded by Seven Mile Road, Soda Lake Road, Elkhorn Plain Road and San Diego Creek Road, and the Poso Creek area (E½NE¼, Sec. 32, T. 27 S., R. 27 E., MDB&M), shall be closed to shooting for public safety.

Management Actions

-Post the boundaries of ACECs.

-Provide interpretive signs at ACEC.

-Investigate the need for and identify, if appropriate, the location of an OHV use area.

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address

maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, the Carrizo CRMP, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Alternative 5 - Preferred Alternative

Objectives

1. Improve resource management and management effectiveness through land acquisition, exchange, or disposal. Lands with high resource values may be obtained either through purchase, or through the exchange of parcels with low resource values.

2. Encourage oil and gas leasing, exploration, and production while minimizing residual impacts to sensitive resources.

3. Provide for livestock grazing while minimizing residual impacts and providing for the protection and recovery of sensitive resources.

Land Use Allocations

ACECs

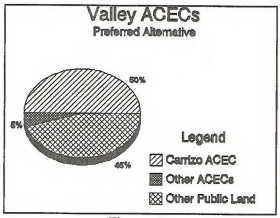


Figure 27

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 17a, 17b. Appendix A-3 also shows necessary support actions.

ACEC	Terms and Conditions															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Carrizo Plain			X		X			X			X		X			
Lokern	X			X		X									X	
Alkali Sink		X								X		X				X
Blue Stone Ridge	X						X							X		
Goose Lake		X								X		X				X
Chico Martinez	X								X			X				
Kettleman Hills	X								X							
Terms & Cond.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Carrizo Plain	X			X		X					X		X		X	X
Lokern		X		X			X			X						
Alkali Sink			X		X	X			X	X		X				
Blue Stone Ridge				X			X				X					
Goose Lake			X		X	X			X	X		X				
Chico Martinez				X			X			X				X		
Kettleman Hills								X		X				X		

Table 17a

Carrizo Plain ACEC

-Designate public lands and reserved mineral estate encompassing 156,400 acres of public land and 13,200 additional acres of reserved mineral estate, as the Carrizo Plain Area of Critical Environmental Concern. The Carrizo Plain ACEC will encompass and replace the Elkhorn Plain ACEC, Soda Lake ACEC and San Andreas Fault Scarp RNA/ACEC, all of which were designated in 1984. The Carrizo Plain ACEC shall be managed for the protection of sensitive plant, animal, cultural, Native American traditional lifeway values, and geologic resources.

Lokern ACEC

-Designate 3040 acres of public land and 3400 acres of reserved mineral estate as the Lokern Area of Critical Environmental Concern for the protection of listed plant and animal species.

ACEC Terms and Conditions

1. The ACEC is open for the leasing of oil, gas, and geothermal resources subject to major constraints.
2. The ACEC is open for the leasing of oil, gas, and geothermal resources subject to No Surface Occupancy.
3. The majority of the ACEC is open for the leasing of oil, gas, and geothermal resources subject to major constraints; however Soda Lake is closed to leasing.
4. If a suitable mineral materials site cannot be found outside of the ACEC, sales of mineral materials may be authorized at the site of the old Elk Hill Community pit in the NW¼ Sec. 2, T. 30 S., R. 22 E., MDB&M. As part of the reclamation fee, a compensation fee will be collected.
5. Disposal of mineral materials is limited to areas where there would be no residual impacts to sensitive resources. No disposals may occur along the San Andreas Fault or at Soda Lake.
6. The ACEC is open to leasing for solid leasable minerals subject to major constraints.
7. The leasing of solid leasable minerals and disposal of mineral materials may occur where compatible with ACEC objectives and where residual impacts to sensitive resources are minimal and can be compensated.
8. Those portions of the ACEC east of the Caliente Mountain ridgeline are closed to leasing for solid leasable minerals. Those lands west of the ridgeline are open subject to major constraints.
9. The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints.
10. The ACEC is closed to the leasing of solid leasable minerals and to the sale of mineral materials.
11. Soda Lake and surrounding wetlands shall be withdrawn from the mining laws. In all other areas, all mining plans of operation must be compatible with the ACEC objectives, and residual impacts to sensitive resources must be compensated.
12. All public land within the ACEC shall be proposed for withdrawal from the mining laws.
13. Livestock grazing shall be managed to foster restoration and enhancement of plant communities and listed plant and animal species.
14. Those portions of the ACEC outside of existing grazing allotments shall remain unavailable to grazing.
15. The ACEC is closed to livestock grazing, unless research shows grazing is necessary to meet management objectives.
16. The ACEC is closed to livestock grazing.
17. Camping is restricted to designated locations.
18. Camping in the ACEC requires approval and a permit from the authorized officer.
19. No camping is permitted within the ACEC.
20. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
21. Public access off designated routes of travel is restricted to pedestrian access only.
22. These lands shall be managed under Class II VRM guidelines.
23. These lands shall be managed under Class III VRM guidelines.
24. These lands shall be managed under Class IV VRM guidelines.
25. Water diversions are prohibited.
26. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
27. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that are compatible with ACEC objectives and where residual impacts to sensitive resources are minimal and can be compensated.
28. Collection of vegetative materials within the ACEC requires a permit.
29. The San Andreas Fault will continue to be managed as a Research Natural Area. Scientific trenching along the San Andreas Fault will be allowed by permit only.
30. Casual collection of invertebrates is limited to those found on the surface. Collecting vertebrate fossils requires a permit.
31. Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.
32. Designation of any of these lands as wilderness shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wilderness Management Policy.

Table 17b

Alkali Sink ACEC

-Designate 442 acres of public land as the Alkali Sink Area of Critical Environmental Concern. This ACEC will be managed to protect the rare alkali sink plant community and habitat for State and Federally listed plants and animals.

Blue Stone Ridge ACEC

-Designate the Blue Stone Ridge/Orchard Peak area as an ACEC encompassing 2573 acres of public land and 2833 acres of reserved mineral estate. The Blue Stone Ridge ACEC shall be managed to protect biodiversity, hollisteria (*Hollisteria lanata*), and the blunt nosed leopard lizard (*Gambelia silus*). Prairie falcons and the oval-leaved snapdragon (*Antirrhinum ovatum*) also occurs here and will be protected if discovered.

Goose Lake ACEC

The Goose Lake ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompasses 40 acres of public land. This ACEC is managed for the protection of the rare alkali sink vegetation, habitat for numerous shorebirds and raptors, and the protection of cultural resources.

Chico Martinez RNA/ACEC

-The Chico Martinez (formerly called the Reef Ridge) Research Natural Area / ACEC encompasses 3,200 acres public land and 1,400 acres of reserved mineral estate. This area is managed to protect significant paleontological resources, as well as the type locations for a number of members of geologic formations including the following: the Zemorrian Stage; within the Monterey Shale, the Gould Shale member and the reference section of the McLure Shale member; within the Temblor Formation the Button bed member, the Carneros Sandstone member and the Phacoides sand member.

Kettleman Hills ACEC

-Designate the Kettleman Hills area as an ACEC encompassing 6,680 acres of public land and 2,680 acres of reserved mineral estate. The Kettleman Hills ACEC shall be managed to protect significant paleontological values and wildlife habitat for Federally listed species.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion as being impacted. Land acquisitions will target areas identified by the USF&WS and CDF&G as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-these lands will be retained in Federal ownership and closed to disposal under the general land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-these lands will not be opened to operation of the mining laws and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate;

-the area shall be open to leasing of oil, gas, and geothermal resources subject to NSO or other major constraints;

-public access off designated routes of travel is restricted to pedestrian and equestrian access only;

-camping is restricted to designated locations; and

-livestock grazing shall be managed to

foster restoration and enhancement of plant communities and listed plant and animal species.

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless otherwise specified in this plan, threatened and endangered species range will be available for oil, gas, and geothermal leasing subject to major constraints.

General

-The Buena Vista Valley, encompassing 20,820 acres of public land and 12,940 acres of reserved mineral estate, merits special management attention due to the presence of threatened and endangered species and extremely valuable oil and gas resources. These lands will be managed to serve as threatened and endangered species conservation areas, while continuing to facilitate oil and gas activities. Any additional areas of public land identified as important to the recovery of threatened and endangered species in future or updated recovery plans will be managed in a similar manner. If the USF&WS, through development or updating of recovery plans, determines that these areas are no longer considered threatened and endangered species conservation areas, management may be modified. Special management terms and conditions for these areas include:

-The disposal of mineral materials is limited to roadsides, previously disturbed land, or sites suitable for effective rehabilitation.

-Land in Sec. 28, T. 32 S., R. 24 E., MDB&M and Sec. 9, T. 11 N., R. 24 W., SBB&M shall remain available for disposal. All other lands shall be retained in public ownership.

-These lands shall be managed under Class IV VRM guidelines.

-Lands with high resource values may be acquired as they become available.

-An interdisciplinary plan shall be prepared to address cultural resources, T & E species, oil and gas development, hazardous materials, livestock grazing, elimination of extraneous roads, and OHVs.

-Public land within the Bittercreek National Wildlife Refuge, encompassing 960 acres of public land and 4,400 acres of reserved mineral estate, merits special management attention due to the presence of threatened and endangered species. These lands will be managed to serve as a threatened and endangered species conservation area. If the USF&WS, through development or updating of recovery plans, determines that these areas are no longer considered important for the recovery of threatened and endangered species, management may be modified. Special management terms and conditions for these areas include:

-The area is open to leasing of oil, gas, and geothermal resources subject to major constraints.

-The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints.

-An MOU will be developed with the USF&WS for the cooperative management of these lands, including grazing authorizations.

Grazing

-Livestock grazing shall be authorized on 260,231 acres of public land in 51 allotments at the levels shown in Appendix D-1. Annual plant forage shall be managed at the minimum residual mulch levels shown in the Appendix D-1. Utilization of perennial species will be allowed up to 50% of the current annual year's growth and up to 20% on saltbush. In allotments that contain saltbush scrub, grazing will be allowed only during 12/1 - 5/31, and only during 11/1 - 5/31 in riparian areas that

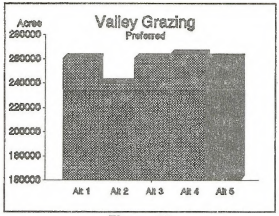


Figure 28

are rated in poor to fair condition. Future adjustments shall be based on monitoring data or new information regarding the occurrence of threatened or endangered species. Grazing treatments that are occurring as a part of research may be modified to reflect the needs of the study.

-Allotments with the known presence of *Eriastrum hooveri* or within the potential habitat for any species listed as threatened or endangered by the USF&WS shall be managed at 500 pounds per acre of minimum residual mulch. When an allotment is located within a threatened and endangered species conservation area for *Eriastrum hooveri,* grazing will be allowed only during 6/1 - 2/14 and only during 5/1 - 2/14 if located within a threatened and endangered species conservation area for *Lembertia congdonii or Caulanthus californicus.* If an allotment contains known areas of Giant Kangaroo Rats, grazing will be allowed only during 6/15 - 4/1. Livestock grazing will be suspended on 3,432 acres of public land in seven allotments due to the known presence of *Eremalche kernensis, Lembertia congdonii, Caulanthus californicus,* or *Opuntia treleasei.*

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of approximately 21,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the preferred method of disposal. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales shall be used only in special circumstances.

-Acquisitions, through exchange or purchase, shall target lands with high resource values including lands within ACECs, the Caliente Mountain WSA, NCLWMAs, or threatened and endangered species conservation areas.

-All public land that has been classified as critical condor habitat will remain in public ownership. All public land that has been classified as essential condor habitat will be considered for disposal only after formal consultation with the U.S. Fish and Wildlife Service. Should these designations be dropped, isolated tracts may be considered for disposal.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated pathways, and communication lines for interstate use.

-New right-of-way authorizations within designated corridors will require NEPA analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-Right of way avoidance areas include the following: ACECs; Wild, Scenic, and Recreational Rivers; and lands identified available for disposal.

-Right of way exclusion areas include all WSAs and wilderness areas.

-Proposals for wind energy development may be considered, on a case-by-case basis, on lands outside of ACEC's, SRMA's, wilderness areas, and wilderness study areas.

-Existing, designated communication sites are listed in Appendix C-2. Authorization for new sites will be considered on a case-by-case basis.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

Leasable Minerals (including Oil & Gas)

-Approximately 21,000 acres of mineral estate (5%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on about 414,000 acres (95%) within certain ACECs, within corridors eligible for Wild and Scenic River Designation, lands managed under VRM Class II, and threatened and endangered species habitat.

-Waters designated as wild or scenic are closed to leasing of oil, gas and geothermal resources; all other areas are open.

-About 31,000 acres of Federal mineral estate (7%) are open to development of other leasable minerals under standard terms and conditions. Leases will be subject to major constraints on 313,000 acres (72%) within threatened and endangered species habitat, lands managed under VRM Class II, and ACECs. Other ACECs encompassing 90,000 acres (21%) are closed to other leasable minerals.

-Mineral leasing and sale on 17,300 acres of land within threatened and endangered species habitat administered by the Department of Defense will be subject to major constraints designed to protect those species. These lands will also be subject to stipulations designed to protect their military mission.

-The Kettleman Hills and portions of Midway - Sunset (Sections 21,22, 23, and 27, T. 31 S., R.22 E., MDB&M) will be managed as showcase areas for oil and gas. The compatibility of oil and gas development with other resources, as well as the success of mitigation and rehabilitation, will be emphasized at Kettleman Hills. Improved management within areas of heavy development will be the focus of the Midway - Sunset parcels.

Mineral Materials

-About 4,000 acres of Federal mineral estate (1%) are open to development of mineral materials under standard terms and conditions. Sales will be subject to major constraints on 425,000 acres (98%) within threatened and endangered species habitat and within certain ACECs. Additional ACECs encompassing 5,000 acres (1%) are closed to mineral material extraction.

Locatable Minerals

ACECs encompassing 3,000 acres (1%) are proposed for withdrawal from the mining laws. All other areas will remain open to the location of claims.

Recreation

-Public lands in the management area are designated as "limited". This means that all vehicle use by the public is restricted to designated routes of travel. Designated routes

of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-The Soda Lake - Elkhorn Plains Loop Road is designated as a Backcountry Byway.

-Land within wilderness study areas that is released from further study shall be managed to maintain and protect primitive values.

-The Painted Rock parking area, trail and rock, oilfield facilities, the area around Soda Lake, and the Poso Creek area (E½NE¼, Sec. 32, T. 27 S., R. 27 E., MDB&M), shall be closed to shooting for public safety.

Management Actions

-Acquire land with significant paleontological values, including but not limited to the Round Mountain area, Maricopa Tar Pits, and McKittrick Tar Pits, should landowners be interested in selling.

-Pursue development of a CMA with interested parties for the protection, study, and interpretation of paleontological resources on public land.

-Post the boundaries of ACECs. Provide interpretive signs for ACECs.

-Post signs identifying public land boundaries where key access roads enter public lands in oilfields.

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, the Carrizo CRMP, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Rationale for the Preferred Alternative

Alternative 5 - The public lands within the Valley Management Area includes parcels with nationally significant resource values. The oil reserves have long been recognized as having national importance. The concentration of oil wells in parts of the management area is without equal in the United States. The majority of the management area lies within the range of several of the twelve plant and animal species that are Federally listed as threatened or endangered. Also, the Carrizo Plain Natural Area has received widespread attention for its biological, cultural, and recreational values.

The primary benefit of the preferred alternative is its success in balancing these values. Virtually all Federal mineral estate in the management area is available for oil & gas leasing. Constraints necessary for the protection of threatened or endangered species, as well as other significant cultural and biological values, will be applied on 80% of all lands. Rather than close down most lands to leasing for the benefit of listed species, or allow development at the possible

risk to these species, this approach provides for wise development.

The retention of five ACECs (three are combined into one new ACEC) and the designation of five new ACECs will help to provide management attention to significant areas of conflict. These designations, while providing additional protection, still allow for development to occur. Cultural and paleontological resources, geologic features, wildlife, and vegetation all receive consideration in these ACECs.

Other concerns are also handled equitably under the Preferred alternative. Livestock grazing is allowed to continue in a manner compatible with Federally listed plants and animals. Grazing may continue on the vast majority of rangeland, while sensitive species benefit from stringent protective measures. Over 20,000 acres are available for exchange, allowing for an increase in management efficiency and public access. At the same time, unique areas will be retained, preserving our ability to manage for biodiversity. Perhaps the crown jewel of the area is the Carrizo Plain, which will be managed for biological and cultural resources. Increased recreational/interpretive development will be possible with implementation of the ACEC plan.

South Sierra Management Area

Guidance and Decisions Common to All Alternatives

The following land use allocations and management actions apply to the South Sierra Management Area under all alternatives.

Land Use Allocations Common to All Alternatives

General

-All rivers and creeks in the management area will be managed to meet State of California standards for allowable fecal coliform. Priorities will be given to the North Fork of the Kaweah, Canebrake Creek, Long Valley Creek, Bodfish Creek, French Gulch Creek, Willow Creek and Bodfish Spring.

-The Walker Pass Coordinated Resource Management Area will be managed for sustained resource use, including recreation, grazing, and mining, while ensuring appropriate resource protection (vegetation, wildlife, cultural resources, and watershed). A coordinated resource management plan (CRMP) developed in conjunction with affected parties, will be used to identify management actions and objectives (Appendix J).

Biological Resources

-Public land in the Monache-Walker Pass NCLWMA will be managed to improve and maintain a diverse assemblage of vegetative communities to benefit wildlife resources and recreational opportunities. Each vegetative community will be managed to perpetuate that particular vegetative community and the various wildlife and plant species associated with it. Existing activity plans (AMP's, HMP's, etc.) for public lands within NCLWMAs will be combined into interdisciplinary activity plans, and will identify actions necessary to accomplish this.

Fire Management

-All wildfires will be suppressed. Intensive fire suppression techniques shall be used in all areas of intermingled public and private lands within urban intermix areas in order to prevent the loss of life and property. This designation includes all public land within the Kern River watershed, and within four miles of Havilah, Kaweah, and Loraine areas. The goal on these lands is to keep 90% of the fires to 10 acres or less.

-Fire use areas include the entire management area. On Case Mountain, the sequoias need fire for regeneration and to reduce the intensity of potential wildfires. The same is true within the Piute Cypress ACEC. In all areas fire may be used to improve wildlife and plant habitat, site productivity, watershed protection, and to reduce wildfire fuel loads. Any prescribed burns would be preceded by the preparation of an interdisciplinary burn plan and NEPA analysis.

-The entire management area is identified as a fire fuels management area. If necessary, removal of inflammable vegetation between wildland areas and structures may be accomplished through mechanical means, prescribed burning, or a combination of the two, utilizing the NEPA process to select the best method.

-Blading by bulldozers or similar heavy equipment shall be allowed in culturally and biologically sensitive areas, including ACECs, only when absolutely necessary to protect structures, the public, or sensitive resources.

-All remaining lands shall be conditional suppression areas. Suppression intensity in these areas will vary with conditions occurring at the time of ignition. Suppression intensities may range from intense, where damage to life or property is possible, to light hand tactics, in biologically or culturally sensitive locations.

Forestry

-Approximately 107,500 acres of non-commercial forested lands in the Chimney Peak / Walker Pass region have over 10 % canopy cover, with single leaf pinyon the

dominant species. These lands shall be managed to promote a self-sustaining and diverse pinyon forest ecosystem. Management shall include an evaluation of the overall effects of forest pests. Approximately 17,500 acres of forested land within the Long Valley loop road is available for restricted management of forest products. Limited woodcutting, Christmas Tree harvesting, and pinyon nut gathering are allowable, subject to the direction of this plan. Approximately 90,000 acres of forested land are within WSAs, and therefore are currently unavailable for management of forest products.

-Fuelwood permits will only be considered for pinyon pine in the Chimney Peak and Kennedy Meadows areas. All non-commercial fuelwood harvesting will be limited to specific sales along existing roads. Limited commercial fuelwood harvesting may be considered in sensitive locations and hard to access areas if necessary for the management of Black Stain Root Disease and the pinyon ecosystem.

-Approximately 1840 acres of commercial forest land and 7680 acres of non-commercial forested lands on Case Mountain and 200 acres of commercial forest land and 3840 acres of non-commercial forested lands on Milk Ranch Peak have over 10% canopy cover. The non-commercial lands are covered primarily by chaparral and broad-leafed tree species. These commercial forest lands are located in the Case Mountain WSA and shall be managed for the protection and improvement of sequoia on Case Mountain, as well as for the protection of sensitive plant and animal species, and potential wilderness values. They will be protected from surface disturbance and erosion caused by activities such as grazing, heavy human visitation, mining, OHV use, and adjacent logging. On Case Mountain, 480 acres of acquired land containing 2 giant sequoia groves shall be managed specifically for the protection and enhancement of these groves, as well as sensitive species and recreation. The remaining lands are not available for management of forest products, as they are either located within WSAs or have no commercial value. No lands shall be available for intensive or even restricted management of forest products, although limited Christmas tree harvesting within the 480 acres of acquired land on Case Mountain shall be allowable for non-commercial use, subject to the direction of this plan. No lands are available for intensive management, nor shall any be managed for the enhancement of other forestry uses.

Grazing

-2,909 acres of currently unalloted lands which fall within existing allotment boundaries will be administratively added to those allotments to complete proper management units.

Minerals, Oil, & Gas

-Sand and gravel from the Kelso Creek Community Pit will continue to be sold, so as to provide a source of mineral material for community needs.

-Within the South Sierra Management Area other government agencies have acquired lands under the authority of the Recreation and Public Purposes Act. Uses are as diverse as an archery range, the Kernville rodeo grounds and the Cyrus Canyon County Dump. These lands comprise about 221 acres, on which the United States has reserved the mineral estate. These lands are unavailable under the mining laws and available to mineral leasing and sale only with the consent of the surface owner, under major constraints.

-Public water reserves administered by BLM, comprising 160 acres, are closed to nonmetalliferous mining through an act of congress.

-Wilderness Study Areas that are recommended by the BLM as suitable for wilderness designation (27,000 acres) shall be withdrawn from the mining laws.

-Within the management area about 2,700 acres were patented under the Small Tract Act.

The United States has reserved the mineral estate on these lands, which are unavailable for mineral location until such time as regulations are developed for their removal (see 43 USC 682B). Mineral materials will be unavailable for sale on these parcels indefinitely.

Recreation

-Manage the PCNST (Pacific Crest National Scenic Trail Special Recreation Management Area) in a compatible manner with the USFS and National Park Service to maintain the designated VRM Classes II and III. Continue closure of trail to vehicles, including bicycles, except for administrative use. Manage the Lamont Peak spur trail to the PCNST as a hiking and equestrian trail, and close it to motorized and mechanized vehicles.

-Within the Caliente Resource Area, the PCNST crosses portions of the Owens Peak and Rockhouse Basin WSAs. These areas are subject to management constraints placed upon them by the Interim Management Policy and Guidelines for Lands under Wilderness Review and the regulations as prescribed in 43 CFR 3802. If these areas are granted wilderness status by Congress, each area's individual wilderness management plans will document the amount and type of maintenance and developments allowed.

-Provide for recreational mining through the continued closure to the mining laws in the Keyesville area (SE¼ Sec. 25, and N½NE¼, SE¼ Sec. 36, T. 26 S., R. 32 E., MDB&M).

-On public lands within T. 25 S., R. 32 & 33 E.; T. 26 S., R. 32 & 33 E., and T. 27 S., R. 32 & 33 E., MDB&M camping is limited to a total of 45 days within each calendar year.

Management Actions Common to All Alternatives

General

-The Salt Creek Road will be modified to minimize erosion.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

Biological Resources

-A prescribed burn plan will be developed to enhance sequoia regeneration and to reduce the fuel load.

-Combine existing activity plans (AMP's, HMP's, RMP's etc.) for public lands within NCLWMAs into interdisciplinary activity plans.

-Continue to study Blackstain Root Disease and implement recommended actions.

Forestry

-Revise the forestry plan for SYU 15.

Lands

-Land that is of significant public interest but is currently inaccessible, will have public access acquired on a case-by-case basis. Access may be controlled if limits are needed to protect sensitive resources. The Bureau shall continue to seek administrative access to Blue Ridge, Case Mountain (from both Salt Creek Road and Oak Grove Road), Milk Ranch Peak, Lamont Meadow, Cow Canyon, Spanish Needles, Oak Creek, Red Mountain, Nellie's Nipple, and the Ker 311 National Register property. Administrative access shall continue to be handled on a case-by-case basis through the use of acquired easements, reciprocal ROWs and MOUs.

-Survey Quonset Beach to verify ownership.

-The Bureau may acquire lands in the Blue Ridge area identified as critical for the protection of the condor, consistent with existing recovery plans.

Minerals, Oil, & Gas

-Complete a development plan for the Kelso Valley Community Pit.

Recreation

-Study the suitability of the following BLM river corridors for WSR status: Canebrake Creek, Chimney Creek, East Fork of the Kaweah, Middle Fork of the Kaweah and North Fork of the Kaweah, Lower Kern, South Fork of the Kern, and Spanish Needles Creek.

-Sign the recreational mining areas at Keyesville.

-Post information on camping restrictions in high use areas.

-Sign and develop backcountry byways.

Alternative 1 - No Action (Continuation of Present Management)

Objectives

1. Improve management effectiveness while retaining resource values and areas of high mineral potential, through the disposal of lands in this management area in exchange for land consolidation throughout the Resource Area.

2. Provide opportunities for recreation that are compatible with other multiple use objectives, in response to public requests.

3. Continue geothermal and solid mineral leasing and development, while providing for appropriate levels of protection for sensitive resources.

4. Provide for livestock grazing while minimizing residual impacts to sensitive resources.

Land Use Allocations

ACECs

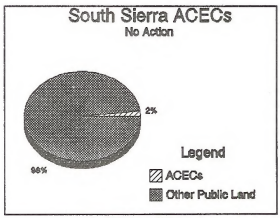


Figure 29

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 18. Appendix A-3 also shows necessary support

ACEC	Terms and Conditions								
	1	2	3	4	5	6	7	8	9
Blue Ridge	X		X	X	X		X	X	
Plute Cypress		X		X		X		X	X

ACEC Terms and Conditions

1. All public land within the ACEC shall be proposed for withdrawal from the mining laws.
2. Public land within the ACEC shall remain under withdrawal from the mining laws.
3. All land within the ACEC is closed to livestock use unless grazing is deemed necessary by the USF&WS to assist in condor recovery.
4. Public access off designated routes of travel is restricted to pedestrian and equestrian access.
5. Public lands in this ACEC are closed to OHV use. Motor vehicles may continue to be used for administrative purposes.
6. These lands shall be managed under Class III VRM guidelines.
7. These lands shall be managed under Class IV VRM guidelines.
8. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that are compatible with ACEC objectives and where residual impacts to sensitive resources are minimal and can be compensated.
9. Designation of any of these lands as wilderness shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wilderness Management Policy.

Table 18

actions.

Blue Ridge ACEC

-The Blue Ridge ACEC was designated with the adoption of the South Sierra Foothills Management Framework Plan in August, 1984. It encompasses 3,175 acres of public land and 2,000 acres of reserved mineral estate. The Blue Ridge ACEC shall be managed for the protection of designated critical condor habitat.

Plute Cypress ACEC

-The Plute Cypress Natural Area was designated on February 4, 1965 (Public Land Order 3530, 30 FR 1194). As defined the area encompasses 40 acres of U. S. mineral estate and 720 acres of BLM administered surface. The Natural Area was "withdrawn to all forms of appropriation under the public land laws including the mining laws."

The ACEC shall be managed to protect the Plute cypress grove and other associated sensitive plant species.

Biological Resources

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless otherwise specified elsewhere in this plan, threatened and endangered species range will be available for oil, gas, and geothermal leasing subject to major constraints.

Forestry

-Permits for Christmas tree cutting shall only be considered within two areas. In a 520 acre parcel at Case Mountain (NW¼, NW¼NE¼ Sec. 26, E½ Sec. 27, T. 17 S., R. 29 E., MDB&M.) up to 100 white fir saplings may be cut annually. In a 2240 acre site at Chimney Peak (E½ Sec. 33, W½ Sec. 34, SE¼ Sec. 35, T. 23 S., R. 36 E., MDB&M., NW¼ Sec. 2, Sec. 3, and Sec. 10, T. 24 S., R. 36 E., MDB&M.) up to 200 single leaf pinyon may be harvested annually. Permits will only be issued for non-

commercial purposes.

Grazing

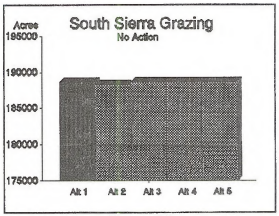


Figure 30

-Livestock grazing shall be authorized on 188,596 acres of public land in 51 allotments at levels shown in Appendix D-1. The minimum residual mulch level in potential habitat for species listed as threatened or endangered by the USF&WS, shall be 500 pounds per acre. All other allotments will be managed at the mulch levels shown in the appendix. Utilization of up to 50% of the current annual year's growth on perennials shall be allowed in all allotments within habitat for species listed as threatened or endangered by the USF&WS or those allotments classified as perennial or perennial/annual in the South Sierra Foothill Monitoring Plan. Future adjustments shall be based on new information regarding the occurrence of threatened or endangered species, or monitoring data.

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 12,000 acres of mostly small and isolated parcels shall remain available for disposal (Appendix C-4). Acquire land that might facilitate management, including WSA inholdings. Emphasis shall be placed on improving resource management efficiency through consolidation of public lands.

-Utility corridors throughout the management area have not been designated. New rights-of-way are authorized on a case-by-case basis following NEPA analysis. Special stipulations are applied in those areas where threatened and endangered species, cultural resources, or other resource values may be impacted. Previously disturbed areas and existing routes are to be used whenever possible.

-Proposals for wind energy development will be considered on a case-by-case basis.

-Designated communication sites are listed in Appendix C-2. Authorization for new sites will be considered on a case-by-case basis.

-Public land that has been classified as critical condor habitat will remain in public ownership. All public land that has been classified as essential condor habitat will be considered for disposal only after formal consultation with the U.S. Fish and Wildlife Service.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

Leasable Minerals (including Oil & Gas)

-Approximately 306,000 acres of mineral estate (71%) will remain available for oil, gas and geothermal leasing under standard terms and conditions. Leasing on 39,000 acres (9%) is

closed within wilderness study areas recommended suitable for wilderness designation. About 88,000 acres (20%) are open to leasing subject to major constraints.

-Approximately 329,000 acres of mineral estate (76%) will remain available for other leasable minerals. About 62,000 acres (14%) are within threatened and endangered species habitat and are open to leasing subject to major constraints. About 42,000 acres (10%) are closed within suitably recommended wilderness study areas, in small tract patents, and on lands encompassed by Recreation and Public Purposes leases or patents.

Mineral Materials

-Roughly 366,000 acres of mineral estate (85%) will remain available for mineral materials. About 27,000 acres (6%) are within threatened and endangered species habitat and are open for use subject to major constraints. An additional 40,000 acres (9%) are closed within suitably recommended wilderness study areas, in small tract patents, or are in Recreation and Public Purposes leases or patents.

Locatable Minerals

-An estimated 386,000 acres of mineral estate (89%) will remain available for development of locatable materials. About 46,000 acres (11%) are closed within suitably recommended wilderness study areas, in small tract patents, in Recreation and Public Purposes leases or patents, public water reserves and within certain ACECs.

Recreation

-The Blue Ridge ACEC is designated as "closed" to OHV use. All other public lands in the management area are designated as "limited". In areas designated as "limited", vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-Manage the three high use areas found at Cherry Falls, Picnic Site #1, and the Advance Colony in the North Fork SRMA for extensive recreation use.

Management Actions

-Prepare an activity plan for each SRMA. Implement Recreation Activity Management Plans (RAMPs) as well as the CRMP for Walker Pass. Continue the development and implementation of AMPs, HMPs, and ACEC management plans.

-Provide basic sanitation and recreation facilities in the North Fork SRMA.

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Inventory threatened and sensitive species populations and habitat quality within grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Alternative 2 - Natural Resource Protection

Objectives

1. Enhance resource management through land acquisition, exchange, or disposal. Lands with high resource values may be obtained either through purchase, or through the exchange of parcels with low resource values.

2. Provide opportunities for recreational uses that are compatible with natural and cultural resource protection, and control those activities which are incompatible with those resources.

3. Limit geothermal and solid mineral leasing and development to areas where residual impacts to sensitive resources are minimal.

4. Emphasize protection and recovery of sensitive resources while providing for livestock grazing only where residual impacts to sensitive resources are minimal.

Land Use Allocations

ACECs

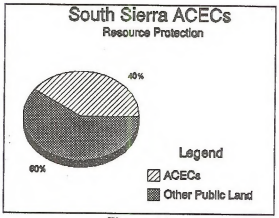


Figure 31

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 19a, 19b. Appendix A-3 also shows necessary support actions.

Blue Ridge ACEC

-The Blue Ridge ACEC was designated with the adoption of the South Sierra Foothills Management Framework Plan in August, 1984. As defined the ACEC encompasses approximately 3,175 acres of public land. Public land and reserved mineral estate within the Blue Ridge Critical Habitat not already part of the ACEC, will be added with adoption of this plan, bringing the totals to 3,196 acres of public land and 2,000 acres of reserved mineral estate. The Blue Ridge ACEC shall be managed for the protection of designated critical condor habitat.

Piute Cypress ACEC

-The Piute Cypress Natural Area was designated on February 4, 1965. As defined under this alternative, the area encompasses 200 acres of U. S. mineral estate and 720 acres of BLM administered surface. The Natural Area was "withdrawn to all forms of appropriation under the public land laws, including the mining laws." The ACEC shall be managed to protect the Piute cypress grove and other associated sensitive plant species.

Case Mountain ACEC

-Designate the Case Mountain area as an ACEC encompassing 5,655 acres of public land. The Case Mountain ACEC located in the southern Sierra Nevada Mountains contains several unique resources worthy of protective management. Management of this ACEC shall focus on protection of the giant sequoia groves, sensitive plant/animal species found in their undisturbed habitats, cultural resources, and pristine riparian areas.

Walker Pass ACEC

-Designate the Walker Pass and Canebrake Creek Area as an ACEC encompassing 30,900 acres of public land and 4,400 acres of reserved mineral estate. This area shall be

ACEC	Terms and Conditions																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Blue Ridge	X			X				X							X				
Piute Cypress	X			X				X						X			X		
Case Mtn	X			X						X						X			
Walker Pass		X	X			X	X												
Keyesville	X			X														X	
Deer Spring	X			X				X				X							
Chimney Pk	X		X			X			X										
Kernville Hotsprings	X			X				X					X						
Erskine Creek	X				X						X			X					
Horse/Sand Canyon	X		X			X								X					
N. Fk.of the Kaweah	X		X			X		X											X
Terms & Cond.	20	24	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	34
Blue Ridge			X			X		X				X							
Piute Cypress	X	X			X			X			X								
Case Mtn					X			X				X			X	X		X	
Walker Pass						X				X		X	X	X			X	X	
Keyesville		X		X		X			X			X							X
Deer Spring						X				X	X							X	
Chimney Pk						X	X			X		X					X	X	X
Kernville Hotsprings	X				X			X			X		X						
Erskine Creek						X		X			X		X						
Horse/Sand Canyon					X			X				X							
N. Fk. of the Kaweah					X			X				X							X

Table 19a

ACEC Terms and Conditions

1. The ACEC will be closed to oil, gas, and geothermal leasing.
2. The ACEC is open to leasing of oil, gas, and geothermal resources subject to major constraints. The Walker Pass National Historic Landmark (NHL) and all campgrounds may be leased subject to NSO.
3. The leasing of solid leasable minerals is open with major constraints. The Walker Pass NHL is closed to leasing.
4. The ACEC is closed to the leasing of solid leasable minerals and to the disposal of mineral materials.
5. The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints. The extraction of mineral materials for road maintenance within the ACEC may be permitted.
6. Disposals of mineral materials may be authorized outside of or away from riparian zones, joshua trees, sensitive plants, and cultural resources.
7. Sales of mineral materials will not be made within the Walker Pass National Historic Landmark.
8. Lands shall be proposed for and/or remain under withdrawal from the mining laws.
9. The Pacific Crest National Scenic Trail corridor shall be proposed for withdrawal from the mining laws.
10. 250 acres within the sequoia groves shall be proposed for withdrawal from the mining laws.
11. N½ Sec. 22 and SE¼SW¼ Sec. 15, T. 27 S., R. 33 E., shall be proposed for withdrawal from location.
12. Livestock grazing shall be managed to foster restoration and enhancement of native plant communities.
13. Grazing shall not be permitted within riparian areas and rare plant populations.
14. The ACEC is closed to livestock grazing.
15. All land within the ACEC is closed to livestock use unless grazing is deemed necessary by the USF&WS to assist in condor recovery.
16. Grazing operations shall be adjusted or terminated within the sequoia community if studies show they have a negative effect upon the plant community.
17. No plant collecting may occur without a permit.
18. The Keyesville ACEC is closed to camping, except for camping associated with authorized white-water rafting activities.
19. Cherry Falls, Picnic Site #1, and the Advance Colony are all closed to camping.
20. No camping or campfires are permitted within the ACEC.
21. The entire ACEC shall be managed to improve public safety, and is therefore closed to shooting.
22. The ACEC is designated as closed to OHVs. Motor vehicles may continue to be used for administrative purposes.
23. The existing two white-water launch sites may be maintained and an additional site at the Bodfish off-ramp (for use during low-water years) may be constructed contingent upon NEPA analysis.
24. Public access off designated routes of travel is restricted to pedestrian access only.
25. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
26. Travel within riparian areas is limited to pedestrians.
27. These lands shall be managed under Class II VRM guidelines.
28. The Lower Kern River corridor shall be managed to conform to VRM Class II.
29. These lands shall be managed under Classes II, III and IV of the VRM guidelines as shown on Map ___.
30. This ACEC is a right of way exclusion area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
31. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
32. No new water diversions shall be authorized.
33. Land within this ACEC is available for exchange for other land within the same ACEC.
34. Timber harvesting and fuelwood gathering are prohibited within the boundaries of the ACEC.
35. Manage the watershed to meet State of California coliform standards. Identify sources of fecal coliform in Salt Creek, and take appropriate action, such as signing or fencing, to mitigate the problem.
36. The Walker Pass CRMP is adopted as the ACEC management plan.
37. Designation of any of these lands as wilderness shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wilderness Management Policy.
38. Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.

Table 19b

managed to protect unique Sierra riparian areas, significant cultural sites, Joshua tree woodland, pinyon woodland, the Walker Pass National Historic Landmark, the Pacific Crest National Scenic Trail, the Owens Peak wilderness study area (part of which has been recommended by the Bureau as suitable for wilderness designation), Native American traditional lifeway values, special status plant and animal species (four plants that are Category 2 candidates and one Category 1 candidate for listing as threatened or endangered, and several birds that are either candidates for Federal listing as threatened or endangered, or are already listed by the state). The ACEC shall also be managed to allow appropriate multiple use of the forage resource, the wildlife resource, and dispersed recreational use - especially that associated with the Pacific Crest National Scenic Trail.

Keyesville ACEC

Designate a portion of the public land surrounding Keyesville historic townsite as an ACEC encompassing 7,170 acres of public land and 864 acres of reserved mineral estate.

The Keyesville ACEC shall be managed for the enhancement of compatible recreational opportunities (camping, fishing, white-water rafting, hiking, horse-riding, bicycling, nature study, OHV use, and recreational mining) and for its natural resources, especially for those resources which attract recreational users (open space, hilly terrain in a blue oak/digger pine woodland, riverine settings aside challenging white-water, historic/prehistoric values and a variety of common plants and animals).

Deer Spring ACEC

-Designate the Deer Spring area as an ACEC encompassing 320 acres of public land. The Deer Spring ACEC shall be managed to protect riparian, cultural resources and habitat for deer.

Chimney Peak/Lamont Meadow ACEC

-Designate the Chimney Peak/Lamont Meadow/Long Valley area as an ACEC encompassing approximately 40,153 acres of public land and 1,260 acres of reserved mineral estate.

The ACEC will be managed for the protection of substantial riparian habitat areas, cultural resources, Native American traditional lifeway values and pinyon woodland, for recreational use along the Pacific Crest National Scenic Trail, and for the protection of special status plant species, including *Phacelia novenmillensis*.

Kernville Hotsprings ACEC

-Designate the Kernville Hotsprings area as an ACEC encompassing 160 acres of public land and 110 acres of reserved mineral estate. The Kernville Hotsprings ACEC shall be managed to protect riparian resources and the potential habitat for the alkali mariposa lily (*Calochortus striatus*) and the Kelso Creek monkeyflower (*Mimulus shevockii*). This latter species is the subject of a petition for Federal listing.

Erskine Creek ACEC

-Designate Erskine Creek as an ACEC encompassing 1760 acres of public land and 440 acres of reserved mineral estate. The Erskine Creek ACEC shall be managed to protect the limestone caves, riparian area, *Delphinium purpursii* and the Piute Mountains jewelflower (*Streptanthus cordatus* var. *piutensis*).

Horse Canyon/Sand Canyon ACEC

-Designate Horse Canyon/Sand Canyon area as an ACEC encompassing 1126 acres of public land and 640 acres of reserved mineral estate.

The Horse Canyon/Sand Canyon ACEC shall be managed to enhance resource protection and to provide special management attention to significant irreplaceable cultural resource, paleontological resources, and Native American traditional lifeway values.

North Fork of the Kaweah ACEC

-Designate the North Fork of the Kaweah as an ACEC, consisting of 3,440 acres of public land. The ACEC shall be managed to protect riparian resources, cultural resources, and sensitive vegetation (including but not limited to *Mimulus norrisii*, *Eriogonum nudum* var. *murinum*, and *Brodiaea insignis*).

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion as being impacted. Land acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas, or identified in this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-retention in Federal ownership, and closure to disposal under the general land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-these lands will not be opened to operation of the mining laws, will be closed to all forms of mineral leasing, and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate;

-closed to camping;

-closed to livestock grazing unless research shows grazing is necessary to meet management objectives;

-public access off designated routes is limited to pedestrian access; and

-closed to vegetative material collection.

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless otherwise specified elsewhere in this plan, threatened and endangered species range will be available for oil, gas, and geothermal leasing subject to major constraints.

Forestry

-Permits for Christmas tree cutting shall only be considered within one area. In a 2240 acre site at Chimney Peak (E½ Sec. 33, W½ Sec. 34, SE¼ Sec. 35, T. 23 S., R. 36 E., MDB&M., NW¼ Sec. 2, Sec. 3, and Sec. 10, T. 24 S., R. 36 E., MDB&M.) up to 200 single leaf pinyon may be harvested. Permits will only be issued for non-commercial purposes.

General

-The Ker 311 site will be managed for the protection of cultural resources. Oil, gas, and geothermal leasing may occur subject to NSO.

Grazing

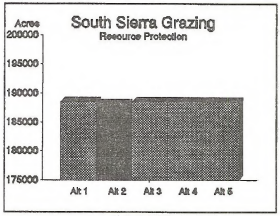


Figure 32

-Livestock grazing shall be authorized on 188,246 acres of public land in 51 allotments at the levels shown in Appendix D-1. With the exception of allotments to be managed under the Walker Pass CRMP and those in habitat for listed species, allotments shall be managed at 500 pounds per acre of minimum residual

mulch. Utilization of perennial species in all allotments will be allowed up to 40% of the current annual year's growth and up to 20% on saltbush. As shown in Appendix D-1, 7 allotments in the Walker Pass/Chimney Peak area will have grazing authorized throughout 11 months during the year. Elsewhere in the management area, grazing will be allowed on allotments classified as perennial from 11/1 to 5/31, and in other allotments only during the "green" season of 12/1 to 5/31. Future adjustments shall be based on new information regarding the occurrence of threatened or endangered species, or monitoring data.

-Allotments within potential habitat for any species listed as threatened or endangered by the USF&WS shall be managed at 700 pounds per acre of minimum residual mulch. Should an allotment include potential habitat for *Eriastrum hooveri, Lembertia congdonii*, or *Caulanthus californicus*, grazing use in that allotment should be allowed during to 6/1 to 10/1 in order to protect these species. This season conflicts with the overall "green" season of use imposed above and thus, no grazing will be authorized on those allotments within potential habitat for these species until new information regarding the occurrence of these species shows future adjustments are allowable. Livestock grazing will be suspended on 350 acres of public land in two allotments due to the known presence of, or its location within a threatened and endangered species conservation area for *Opuntia treleasei*.

-No new grazing allotments will be authorized. Presently unalloted land suitable for grazing, will remain unavailable for use.

Lands

-A total of 15,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the preferred method of disposal. Parcels in the Lake Isabella area returned to Bureau jurisdiction may be considered for transfer to the USFS.

-Acquisitions, through exchange or purchase, shall target lands with high resource or recreation value, including lands within ACECs, WSRs, WSAs, NCLWMAs, threatened and endangered species conservation areas, and the South Sierra Cooperative Management Area.

-Public access to Case Mountain will be acquired; access will be allowed by permit only. Access for public use to inaccessible areas of significant public interest will be acquired on a case-by-case basis.

-All public land that has been classified as critical condor habitat or essential condor habitat will be retained in public ownership until the U.S. Fish and Wildlife Service removes such classification from the parcels.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated pathways, and communication lines for interstate use.

-Rights of way may be granted subject to the limitations described below. New right-of-way authorizations within designated corridors will require NEPA analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-Avoidance areas include the following: the Ker 311 cultural site, Granite Cave site, ACEC's not listed below, and lands identified for possible disposal, Walker Pass National Historic Landmark, and Wild & Scenic Rivers.

-Exclusion areas include the following: WSA's, Wilderness Areas, Deer Spring ACEC, Kernville Hotsprings ACEC, Piute Cypress ACEC, and Erskine Creek ACEC.

-New proposals for wind energy development

will not be considered.

-Existing, designated communication sites are limited to those listed in Appendix C-2.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

-Federal minerals within small tract patents shall be managed to minimize impacts to surface owners. Minerals may be leased subject to NSO.

Leasable Minerals (including Oil & Gas)

-Approximately 259,000 acres of mineral estate (60%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on 91,000 acres (21%) within certain ACECs, within corridors eligible for Wild and Scenic River Designation, or threatened and endangered species habitat.

-About 82,000 acres (19%) of Federal mineral estate in the management area are closed to leasing of oil, gas and geothermal resources. This includes areas designated as wild and scenic rivers, sensitive cultural resources at the Walker Pass National Historic Landmark in T. 26 S., R. 37 E., Granite Cave in T. 26 S., R. 33 E., and the Ker 311 site in T. 26 S., R. 34 E., MDB&M.

-Roughly 239,000 acres (55%) are open to development of other leasable minerals. Leases will be subject to major constraints on 113,000 acres (26%) within certain ACECs and threatened and endangered species habitat. Another 80,000 acres (19%) are closed.

Mineral Materials

-Nearly 295,000 acres (68%) are open to development of mineral materials. Sales will be subject to major constraints on 82,000 acres (19%) within certain ACECs and within threatened and endangered species habitat. Approximately 48,000 acres (13%) are closed, including the Walker Pass NHL, Granite Cave, and Ker 311 cultural sites.

Locatable Minerals

-Approximately 380,000 acres of mineral estate (88%) will remain available for development of locatable materials. About 53,000 (13%) are closed within suitably recommended wilderness study areas, in small tract patents, in Recreation and Public Purposes leases or patents, in areas of significant cultural resources (Walker Pass NHL, Granite Cave, and Ker 311), in public water reserves and within certain ACECs.

-Recreational mining shall require permits where it is allowed within areas withdrawn from the general mining laws. All use must be in compliance with cultural resources legislation. Permits will have the following constraints:

a): Suction dredging - a valid permit from the California Department of Fish and Game is required. Dredges must have an intake nozzle diameter of 3 inches or less. When working in the Kern River, dredges must be at least 100 feet apart. Highbanking is not permitted.

b): Sluices/riffle boxes/dry washers - these gold collection devices must have collecting surfaces of less than 6 square feet.

c): Mining - mechanized earth moving equipment (backhoes, bulldozers), explosives, mercury or other hazardous chemicals may NOT be used. Vegetation

may not be disturbed to conduct recreational mining.

Recreation

-The Blue Ridge ACEC, portions of the Keyesville SRMA, and Short Canyon are designated as "closed" to OHV use. All other public lands in the management area are designated as "limited".

-In areas designated as "limited", vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-Close Cherry Falls, Picnic Site #1 and the Advance Colony (all three are located in the North Fork SRMA), the Piute Cypress ACEC, and the Kernville Hotsprings ACEC to overnight camping. The Keyesville SRMA shall also be closed to camping except for camping associated with authorized white-water rafting activities. Establish a picnic area with sanitation and trash collection in both SRMAs in order to concentrate use and limit adverse impacts.

-Roads in the Keyesville SRMA shall be closed to motor vehicles, except for Pearl Harbor Drive, Keyesville Road, and the picnic area. Administrative use of motor vehicles shall not be limited. Designated roads and trails shall be made available for mountain bikes. Trail maintenance and signing shall take place in cooperation with user groups.

-Motor vehicle use at Case Mountain is restricted to the Salt Creek Road.

-The Canebrake Loop Road, consisting of the Canebrake Road north from Highway 178 to 9 Mile Canyon together with the Long Valley Loop Road, is designated and will be managed as a Backcountry Byway. The Kelso Valley Road is also designated as a Backcountry Byway.

-Land within wilderness study areas that is released from further study shall be managed to maintain and protect primitive values.

-All campgrounds shall be managed to enhance opportunities for recreation. Oil, gas, and geothermal leasing may occur subject to NSO.

-Developed recreational sites, visitor facilities, livestock water improvements, research areas, the Keyesville SRMA, and all authorized facilities belonging to lessees or permittees of the Federal government shall be closed to shooting.

Management Actions

-Sign ACEC boundaries.

-Prepare an activity plan for each SRMA. Implement Recreation Activity Management Plans (RAMPs) as well as CRMPs for Walker Pass and Keyesville. Implementation will include, at a minimum, development of picnic areas at Keyesville and North Fork, and designation of mountain bike trails at Keyesville. Continue the development and implementation of AMPs, HMPs, and ACEC management plans.

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Inventory threatened and sensitive species populations and habitat quality within grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to

reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Alternative 3 - Administrative Adjustments

Objectives

1. Improve management effectiveness through land acquisition, exchange, or disposal. Lands with high resource values may be obtained either through purchase, or through the exchange of parcels with low resource values.

2. Provide increased opportunities for recreational uses that are compatible with natural and cultural resource protection, and control those activities which are incompatible with those resources.

3. Encourage geothermal and solid mineral leasing and development while minimizing residual impacts to sensitive resources.

4. Provide for livestock grazing while minimizing residual impacts and providing for the protection and recovery of sensitive resources.

Land Use Allocations

ACECs

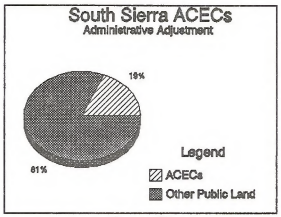


Figure 33

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table

20a, 20b. Appendix A-3 also shows necessary support actions.

Blue Ridge ACEC

-The Blue Ridge ACEC was designated with the adoption of the South Sierra Foothills Management Framework Plan in August, 1984. As defined the ACEC encompasses approximately 3,175 acres of public land. Public land and reserved mineral estate within the Blue Ridge Critical Habitat not already part of the ACEC, will be added with adoption of this plan, bringing the total to 3,196 acres of public land and 2,000 acres of reserved mineral estate. The Blue Ridge ACEC shall be managed for the protection of designated critical condor habitat.

Piute Cypress ACEC

-The Piute Cypress Natural Area was designated on February 4, 1965 (Public Land Order 3530, 30 FR 1194). As defined under this alternative, the area encompasses 200 acres of U. S. mineral estate and 720 acres of BLM administered surface. The Natural Area was "withdrawn to all forms of appropriation under the public land laws including the mining laws." The ACEC shall be managed to protect the Piute cypress grove and other associated sensitive plant species.

Case Mountain ACEC

-Designate the Case Mountain area as an ACEC encompassing 5,655 acres of public land. The Case Mountain ACEC located in the southern Sierra Nevada Mountains contains several unique resources worthy of protective management. Management of this ACEC shall focus on protection of the giant sequoia groves, sensitive plant/animal species found in their undisturbed habitats, cultural resources, and pristine riparian areas.

Walker Pass ACEC

-Designate the Walker Pass and Canebrake Creek Area as an ACEC encompassing 30,900 acres of public land and 4,400 acres of reserved mineral estate.

This area shall be managed to protect unique Sierra riparian areas, significant cultural sites, Joshua tree woodland, pinyon woodland, the Walker Pass National Historic Landmark, the Pacific Crest National Scenic Trail, the Owens Peak wilderness study area (which has been recommended by the Bureau as suitable for wilderness designation), Native American traditional lifeway values, special status plant and animal species (four plants that are Category 2 candidates and one Category 1 candidate for listing as threatened or endangered, and several birds that are either candidates for Federal listing as threatened or endangered, or are already listed by the State). The ACEC shall also be managed to allow appropriate multiple use of the forage resource, the wildlife resource, and dispersed recreational use - especially that associated with the Pacific Crest National Scenic Trail.

Horse Canyon/Sand Canyon ACEC

-Designate Horse Canyon/Sand Canyon area as an ACEC encompassing 1126 acres of public land and 640 acres of reserved mineral estate.

The Horse Canyon/Sand Canyon ACEC shall be managed to enhance resource protection and to provide special management attention to significant irreplaceable cultural resources, paleontological resources, and Native American traditional lifeway values.

North Fork of the Kaweah ACEC

-Designate the North Fork of the Kaweah as an ACEC, consisting of 3,440 acres of public land. The ACEC shall be managed to protect riparian resources, cultural resources, and sensitive vegetation (including but not limited to *Mimulus norrisii*, *Eriogonum nudum*

ACEC	Terms and Conditions															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Blue Ridge		X									X		X			
Piute Cypress	X						X				X				X	
Case Mtn		X						X				X		X		
Walker Pass				X		X			X	X						
Horse/Sand Canyon			X		X											
N. Fk.of the Kaweah			X		X											
Terms & Cond.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Blue Ridge					X	X		X								X
Piute Cypress	X	X		X		X		X						X		
Case Mtn			X			X		X			X	X		X		
Walker Pass					X		X	X	X	X			X	X		
Horse/Sand Canyon					X	X		X							X	
N. Fk. of the Kaweah					X	X		X							X	

Table 20a

var. *murinum*, and *Brodiaea insignis*).

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion as being impacted. Land acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas or by this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-the area shall be open to leasing of oil, gas, and geothermal resources subject to NSO or other major constraints;

-these lands will not be opened to operation of the mining laws and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate;

-these lands will be retained in Federal ownership and closed to disposal under the general land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-public access off designated routes of travel is restricted to pedestrian and

ACEC Terms and Conditions

1. The ACEC will be closed to oil, gas, and geothermal leasing.
2. The ACEC is open to leasing of oil, gas, and geothermal resources subject to major constraints.
3. The ACEC is open to leasing of oil, gas, and geothermal resources subject to no surface occupancy.
4. The ACEC is open to leasing of oil, gas, and geothermal resources subject to major constraints. The Walker Pass National Historic Landmark (NHL) and all campgrounds may be leased subject to NSO.
5. The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints.
6. The leasing of solid leasable minerals is open with major constraints.
7. The ACEC is closed to the leasing of solid leasable minerals and to the disposal of mineral materials.
8. The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints. The extraction of mineral materials for road maintenance within the ACEC may be permitted.
9. Disposals of mineral materials may be authorized outside of or away from riparian zones, joshua trees, sensitive plants, and cultural resources.
10. Sales of mineral materials will not be made within the Walker Pass National Historic Landmark.
11. Lands shall be proposed for and/or remain under withdrawal from the mining laws.
12. 250 acres within the sequoia groves shall be proposed for withdrawal from the mining laws.
13. All land within the ACEC is closed to livestock use unless grazing is deemed necessary by the USF&WS to assist in condor recovery.
14. Grazing operations shall be adjusted or terminated within the sequoia community if studies show they have a negative effect upon the plant community.
15. Initiate studies to ascertain the effects of livestock grazing upon the Piute cypress plant community. A grazing exclosure shall be constructed as a part of this study. Grazing operations shall be adjusted or terminated within the cypress community if they are shown to have a negative effect upon the plant community.
16. No plant collecting may occur without a permit.
17. No camping or campfires are permitted within the ACEC.
18. Vehicle access to Case Mountain will be provided for the public from Oak Grove to a parking area in the SW¼ Sec. 24 or N½ of Sec. 26. Public access off designated routes of travel is limited to pedestrian and equestrian access only. Travel within the sequoia groves is limited to pedestrians.
19. Public access off designated routes of travel is restricted to pedestrian access only.
20. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
21. These lands shall be managed under Class II VRM guidelines.
22. These lands shall be managed under Classes II, III and IV of the VRM guidelines as shown on Map ___.
23. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
24. No new water diversions shall be authorized.
25. Land within this ACEC is available for exchange for other land within the same ACEC.
26. Timber harvesting and fuelwood gathering are prohibited within the boundaries of the ACEC.
27. Manage the watershed to meet State of California coliform standards. Identify sources of fecal coliform in Salt Creek, and take appropriate action, such as signing or fencing, to mitigate the problem.
28. The Walker Pass CRMP is adopted as the ACEC management plan.
29. Designation of any of these lands as wilderness shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wilderness Management Policy.
30. Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.
31. The ACEC is designated as closed to OHVs. Motor vehicles may continue to be used for administrative purposes.

Table 20b

equestrian access only.

-camping is restricted to designated locations;

-livestock grazing shall be managed to foster restoration and enhancement of plant communities and listed plant and animal species.

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless otherwise specified elsewhere in this plan, threatened and endangered species range will be available for oil, gas, and geothermal leasing subject to major constraints.

Forestry

-Permits for Christmas tree cutting shall only be considered within two areas. In a 520 acre parcel at Case Mountain (NW¼, NW¼NE¼ Sec. 26, E½ Sec. 27, T. 17 S., R. 29 E., MDB&M.) up to 100 white fir saplings may be cut annually. In a 2240 acre site at Chimney Peak (E½ Sec. 33, W½ Sec. 34, SE¼ Sec. 35, T. 23 S., R. 36 E., MDB&M., NW¼ Sec. 2, Sec. 3, and Sec. 10, T. 24 S., R. 36 E., MDB&M.) up to 200 single leaf pinyon may be harvested. Permits will only be issued for non-commercial purposes.

General

-The Keyesville area encompasses 7,170 acres of public land and 864 acres of reserved mineral estate in:

T. 26 S., R. 32 E., Sections 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, 36
T. 26 S., R. 33 E., Sections 30, 31
T. 27 S., R. 32 E., Sections 1, 2, 12

Keyesville shall be managed for the enhancement of compatible recreational opportunities (camping, fishing, white-water rafting, hiking, horse-riding, bicycling, nature study, OHV use, and recreational mining) and for its natural resources, especially for those resources which attract recreational visitors (open space, hilly terrain in a blue oak, digger pine savannah landscape, riverine settings aside challenging white-water, historic/prehistoric values, and a variety of common plants and animals).

Special management terms and conditions for this area include:

-The discharge of firearms is prohibited south of the Keyesville Road - Black Gulch Road in order to increase visitor safety.

-A total of 680 acres will be withdrawn from the general mining laws. They include: S½SW¼ Sec. 25, NE¼NE¼ Sec. 35, S½NE¼, N½NW¼ Sec. 36, T. 26 S., R. 32 E., MDB&M.

-Recreational mining may be allowed under permit within areas withdrawn from the general mining laws. All use must be in compliance with cultural resources legislation. Permits will have the following constraints:

Suction dredging - a valid permit from the California Department of Fish and Game is required. Dredges must have an intake nozzle diameter of 3 inches or less. When working in the Kern River, dredges must be at least 100 feet apart. Highbanking is not permitted.

Sluices/riffle boxes/dry washers - these gold collection devices must have collecting surfaces of less than 6 square feet.

Mining - mechanized earth moving equipment (backhoes, bulldozers), explosives, mercury or other hazardous chemicals may NOT be used. Vegetation may not be disturbed to conduct recreational mining.

-Acquire lands with high resource values as available.

-Retain the existing withdrawal for recreational mining.

-All 1,827 acres of public land within Sections 30 and 31, T. 22 S., R. 37 E., MDB&M. (Deer Spring) shall be managed to protect riparian and cultural resources as well as habitat for deer.

-These lands are closed to mineral leasing in order to preserve the characteristics that have warranted the BLM recommendation to designate them as wilderness. Should any of the lands in this ACEC fail to be designated as wilderness and subsequently be released from further wilderness review, they shall be open to mineral leasing and the disposal of mineral materials, subject to major constraints.

-The Chimney Peak/Lamont Meadow area encompasses approximately 40,153 acres of public land and 1,260 acres of reserved mineral estate, within: Sections 25 and 26, T. 23 S., R. 35 E.; Sections 25 through 36, T. 23 S., R. 36 E.; Sections 1, 12, 13, 24, 25, 36, T. 24 S., R. 35 E.; Sections 1 through 24, and 26 through 34, T. 24 S., R. 36 E., as well as public land north of Lamont Creek in Section 25 and public land west of Canebrake road in Section 35 in the same township; and T. 24 S., R. 37 E., all public land north of Lamont Creek and west of the Tulare/Inyo County line in Sections, 3, 4, 5, 6, 7, 8, 17, 19, 20, 29, 30, 31, 32. These lands will be managed for the protection of substantial riparian habitat areas, cultural resources, Native American traditional lifeway values, and pinyon woodland, for recreational use along the Pacific Crest National Scenic Trail, and for the protection of special status plant species, including *Phacelia novenmillensis*. Special management actions for this land include:

-The area is open to oil, gas, and geothermal leasing subject to minor stipulations.

-Disposals of mineral materials may be authorized only outside of or away from riparian zones, joshua trees, sensitive plants, and cultural resources.

-The Canebrake/Long Valley Loop Road is designated as a Scenic Backcountry Byway.

-Chimney Creek shall be studied for WSR status.

-Interpretive signs shall be placed along the Backcountry Byway and other high use recreational zones as appropriate.

-The Kernville Hotsprings lie within 160 acres of public land within the S½SW¼ Section 23 and the N½NW¼ Section 26, T. 25 S., R. 33 E., MDB&M. They shall be managed to protect riparian resources and the potential habitat for the alkali mariposa lily (Calochortus striatus) and the Kelso Creek monkeyflower (Mimulus shevockii). This latter species is the subject of a petition for Federal listing. Special management terms and conditions for this area include:

-This land is open to leasing of oil, gas, and geothermal resources subject to major constraints.

-The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints.

-Water diversions are prohibited.

Erskine Creek

-The Erskine Creek area encompasses 1,760 acres of public land and 440 acres of reserved mineral estate within portions of Sections 9, 13, 14, 15, 16, 17, N½ 22, 24, T. 27 S., R. 33 E, MDB&M. This land shall be managed to protect the limestone caves, riparian area, *Delphinium purpursil* and the Piute Mountains jewelflower (*Streptanthus cordatus* var. *piutensis*). Special management terms and conditions for this area include:

-These lands are open to leasing of oil, gas, and geothermal resources subject to major constraints.

-The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints. The extraction of mineral materials for road maintenance within these sections may be permitted.

-All lands within these parcels are closed

to livestock grazing.

-Acquire lands with high resource values as available.

-Water diversions are prohibited.

-The Ker 311 National Register site will be managed for the protection of cultural resources. Oil, gas, and geothermal leasing may occur subject to NSO.

Grazing

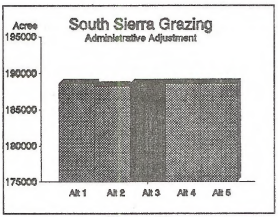


Figure 34

-Livestock grazing shall be authorized on 188,596 acres of public land in 51 allotments at levels shown in Appendix D-1. Allotments shall be managed at the minimum residual mulch levels shown in the appendix and utilization allowed up to 20% on saltbush and up to 50% of the current annual year's growth of other perennials. Future adjustments shall be based on new information regarding the occurrence of threatened or endangered species, or monitoring data. In riparian areas, grazing will be allowed only during 11/1 - 5/31. If monitoring indicates the riparian area is in poor or fair condition, up to 20% utilization on shrubs and 40% utilization on perennial grasses will be allowed in the riparian zone. If monitoring indicates the riparian zone is in good or excellent condition, the existing utilization levels, up to a maximum 50%, will be allowed in the riparian zone.

-Allotments within potential habitat for any species listed as threatened or endangered by the USF&WS shall be managed at 500 pounds per acre of minimum residual mulch. Future adjustments will be based on monitoring data or new information regarding the occurrence of threatened or endangered species.

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 21,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the preferred method of disposal. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales shall be used only in special circumstances. Parcels in the Lake Isabella area returned to Bureau jurisdiction may be considered for disposal.

-Acquisitions, through exchange or purchase, shall target lands with high resource or recreation values, including lands within ACECs, WSRs, WSAs, NCLWMAs, threatened and endangered species conservation areas, and the South Sierra Cooperative Management Area.

-Acquire public access to Case Mountain and Milk Ranch Peak.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated

pathways, and communication lines for interstate use.

-Rights of way may be granted subject to the limitations described below. New right-of-way authorizations within designated corridors will require NEPA analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-Avoidance areas include the following: Ker 311 cultural site, ACEC's and lands identified available for disposal, Granite Cave, Walker Pass National Historic Landmark, and Wild & Scenic Rivers.

-Exclusion Areas include the following: WSA's, Wilderness Areas.

-Proposals for wind energy development may be considered, on a case-by-case basis, on lands outside of ACEC's, SRMA's, wilderness areas, and wilderness study areas.

-Existing, designated communication sites are listed in Appendix C-2. Authorization for new sites will be considered on a case-by-case basis.

-All public land that has been classified as critical condor habitat will remain in public ownership. All public land that has been classified as essential condor habitat will be considered for disposal only after formal consultation with the USF&WS.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

-Federal minerals within small tract patents shall be managed to minimize impacts to surface owners. Minerals may be leased subject to NSO.

Leasable Minerals (including Oil & Gas)

-Approximately 267,000 acres of mineral estate (62%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Oil, gas and geothermal leasing may occur with minor restrictions on 17,000 acres (4%) of the management area.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on 109,000 acres (25%) within certain ACECs, within corridors eligible for Wild and Scenic River Designation, and within threatened and endangered species habitat.

-About 40,000 acres (9%) of Federal mineral estate in the management area), including designated wild and scenic rivers, are closed to leasing of oil, gas and geothermal resources.

-An estimated 271,000 acres (63%) are open to development of other leasable minerals. Leases will be subject to major constraints on 119,000 acres (27%) within certain ACECs and within threatened and endangered species habitat. An additional 43,000 acres (10%) are closed.

Mineral Materials

-Approximately 314,000 acres (72%) are open to development of mineral materials. Sales will be subject to major constraints on 80,000 acres (18%) within certain ACECs and within threatened and endangered species habitat. An additional 40,000 acres (10%) are closed.

Locatable Minerals

-Roughly 383,000 acres of mineral estate (89%) will remain available for development of locatable materials. About 49,000 (11%) are closed within suitably recommended wilderness study areas, in small tract patents, in Recreation and Public Purposes leases or patents, in public water reserves and within certain ACECs.

Recreation

-The Blue Ridge ACEC and Short Canyon are designated as "closed" to OHV use. All other public lands in the management area are designated as "limited".

-In areas designated as "limited", vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-Land within wilderness study areas that is released from further study shall be managed to maintain and protect primitive values.

-All campgrounds shall be managed to enhance opportunities for recreation. Oil, gas, and geothermal leasing may occur subject to NSO.

-The Canebrake Loop Road, consisting of the Canebrake Road north from Highway 178 to 9 Mile Canyon together with the Long Valley Loop Road, will be designated and managed as a Backcountry Byway, as will the Kelso Valley Road.

-Cherry Falls, Picnic Site #1 and the Advance Colony (all three are located in the North Fork SRMA) are closed to overnight camping. Dispersed camping may be allowed in the Keyesville SRMA under permit only. Establish a picnic area with sanitation, fire rings, and trash collection in both the North Fork and Keyesville SRMAs in order to concentrate use and limit impacts.

Management Actions

-Place interpretive signs at Deer Spring, Kernville Hotsprings and Erskine Creek, to protect high resource values.

-Sign ACEC boundaries.

-Prepare an activity plan for each SRMA. Implement Recreation Activity Management Plans (RAMPs)as well as the CRMP for Walker Pass. Implementation will include, at a minimum, development of picnic areas at Keyesville and North Fork. Continue the development and implementation of AMPs, HMPs, and ACEC management plans.

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Inventory threatened and sensitive species populations and habitat quality within grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

Alternative 4 - Development Emphasis

Objectives

1. Improve management effectiveness while retaining significant resource values and areas of high mineral potential, through the disposal of lands in this management area in exchange for land consolidation elsewhere in the Resource Area.

2. Provide increased opportunities for a wide range of recreation uses through provision of facilities and services, while providing protection of sensitive resources.

3. Encourage geothermal and solid mineral leasing and development, while providing protection of sensitive resources.

4. Increase opportunities for livestock grazing while providing protection for sensitive species.

Land Use Allocations

ACECs

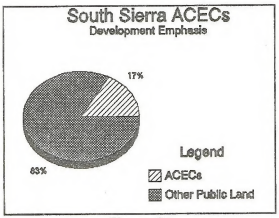


Figure 35

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 21. Appendix A-3 also shows necessary support actions.

Blue Ridge ACEC

-The Blue Ridge ACEC was designated with the adoption of the South Sierra Foothills Management Framework Plan in August, 1984. As defined the ACEC encompasses approximately 3,175 acres of public land. Public land and reserved mineral estate within the Blue Ridge Critical Habitat not already part of the ACEC, will be added with adoption of this plan, bringing the total to 3,196 acres of public land and 2,000 acres of reserved mineral estate. The Blue Ridge ACEC shall be managed for the protection of designated critical condor habitat.

Piute Cypress ACEC

-The Piute Cypress Natural Area was designated on February 4, 1965 (Public Land Order 3530, 30 FR 1194). As defined under this alternative, the area encompasses 200 acres of U. S. mineral estate and 720 acres of BLM administered surface. The Natural Area was "withdrawn to all forms of appropriation under the public land laws including the mining laws." The ACEC shall be managed to protect the Piute cypress grove and other associated sensitive plant species.

Case Mountain ACEC

-Designate the Case Mountain area as an ACEC encompassing 5,654 acres of public land. The Case Mountain ACEC located in the southern Sierra Nevada Mountains contains several unique resources worthy of protective management. Management of this ACEC shall focus on protection of the giant sequoia groves, sensitive plant/animal species found in their undisturbed habitats, cultural resources, and pristine riparian areas.

Walker Pass ACEC

-Designate the Walker Pass and Canebrake Creek Area as an ACEC encompassing 30,900 acres of public land and 4,400 acres of reserved mineral estate. This area shall be managed to protect unique Sierra riparian

ACEC	Terms and Conditions																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Blue Ridge	X	X			X		X		X		X						
Piute Cypress	X		X	X			X	X			X						X
Case Mtn						X	X	X			X			X	X		X
Walker Pass							X			X	X	X	X			X	X
Horse/Sand Canyon							X		X		X						

ACEC Terms and Conditions

1. Lands shall be proposed for and/or remain under withdrawal from the mining laws.
2. All land within the ACEC is closed to livestock use unless grazing is deemed necessary by the USF&WS to assist in condor recovery.
3. No plant collecting may occur without a permit.
4. No camping or campfires are permitted within the ACEC.
5. The ACEC is designated as closed to OHVs. Motor vehicles may continue to be used for administrative purposes.
6. Travel within the sequoia groves is limited to pedestrians.
7. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
8. These lands shall be managed under Class II VRM guidelines.
9. These lands shall be managed under Class III VRM guidelines.
10. These lands shall be managed under Classes II, III and IV of the VRM guidelines as shown on Map ___.
11. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
12. No new water diversions shall be authorized.
13. Land within this ACEC is available for exchange for other land within the same ACEC.
14. Timber harvesting and fuelwood gathering are prohibited within the boundaries of the ACEC.
15. Manage the watershed to meet State of California coliform standards. Identify sources of fecal coliform in Salt Creek, and take appropriate action, such as signing or fencing, to mitigate the problem.
16. The Walker Pass CRMP is adopted as the ACEC management plan.
17. Designation of any of these lands as wilderness shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wilderness Management Policy.

Table 21

areas, significant cultural sites, Joshua tree woodland, pinyon woodland, the Walker Pass National Historic Landmark, the Pacific Crest National Scenic Trail, the Owens Peak wilderness study area (part of which has been recommended by the Bureau as suitable for wilderness designation), Native American traditional lifeway values, special status plant and animal species (four plants that are Category 2 candidates and one Category 1 candidate for listing as threatened or endangered, and several birds that are either candidates for Federal listing as threatened or endangered, or are already listed by the state). The ACEC shall also be managed to allow appropriate multiple use of the forage resource, the wildlife resource, and dispersed recreational use - especially that associated with the Pacific Crest National Scenic Trail.

Horse Canyon/Sand Canyon ACEC

-Designate Horse Canyon/Sand Canyon area as an ACEC encompassing 1126 acres of public land and 640 acres of reserved mineral estate.

The Horse Canyon/Sand Canyon ACEC shall be managed to enhance resource protection and to provide special management attention to significant irreplaceable cultural resources, paleontological resources, and Native American traditional lifeway values.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion as being impacted. Land acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas or lands identified by this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-the area shall be open to leasing of oil, gas, and geothermal resources subject to NSO or other major constraints;

-these lands will not be opened to operation of the mining laws and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate;

-these lands will be retained in Federal ownership and closed to disposal under the general land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-public access off designated routes of travel is restricted to pedestrian and equestrian access only;

-camping is restricted to designated locations; and

-manage livestock grazing to foster restoration and enhancement of plant communities and listed plant and animal species.

Forestry

-Permits for Christmas tree cutting shall only be considered within two areas. In a 520 acre parcel at Case Mountain (NW¼, NW¼NE¼ Sec. 26, E½ Sec. 27, T. 17 S., R. 29 E., MDB&M.) up to 100 white fir saplings may be cut annually. In a 2240 acre site at Chimney Peak (E½ Sec. 33, W½ Sec. 34, SE¼ Sec. 35, T. 23 S., R. 36 E., MDB&M., NW¼ Sec. 2, Sec. 3, and Sec. 10, T. 24 S., R. 36 E., MDB&M.) up to 200 single leaf pinyon may be harvested. Permits will only be issued for non-commercial purposes.

Grazing

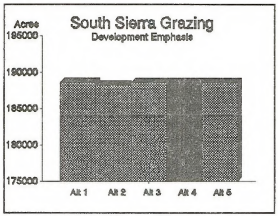


Figure 36

-Livestock grazing shall be authorized on 188,596 acres of public land in 51 allotments at levels shown in Appendix D-1. Allotments that had mulch levels identified in previous land use plans will continue to be managed at those levels, as shown in Appendix D-1. Utilization of perennials on allotments classified as perennial and annual-perennial in the South Sierra Foothill Monitoring Plan shall be allowed up to an average of 50% of

the current annual year's growth. Future adjustments shall be based on new information regarding the occurrence of threatened or endangered species, or monitoring data.

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 28,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the preferred method of disposal. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales shall be used only in special circumstances. Emphasis shall be placed on improving resource management efficiency and accommodating urban growth needs while retaining high resource value lands. Parcels in the Lake Isabella area returned to Bureau jurisdiction may be considered for disposal.

-Acquisitions, through exchange or purchase, shall target lands with high resource or recreation values, including lands within ACECs, WSRs, WSAs, NCLWMAs, threatened and endangered species conservation areas, and the South Sierra Cooperative Management Area.

-All public land available for disposal that has been classified as critical condor habitat, will be considered for disposal only after formal consultation with the USF&WS.

-Acquire public access to Case Mountain and Milk Ranch Peak. Access for public use to other areas of significant public interest will be acquired on a case-by-case basis.

-Designated utility corridors include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. Uses of these corridors include routes for: larger electric transmission facilities, major pipelines, communication sites and associated pathways, and communication lines for Interstate use.

-Rights of way may be granted subject to the limitations described below. New right-of-way authorizations within designated corridors will require NEPA analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

> -Avoidance areas include the Ker 311 site, Granite Cave, all ACEC's, Walker Pass National Historic Landmark, and Wild & Scenic Rivers.
>
> -Exclusion Areas include the following: WSA's, Wilderness Areas.

-Public lands in Secs. 12 and 24, T. 32 S., R. 34 E., MDB&M. are identified as suitable for wind energy development subject to site specific environmental clearances. Applications for wind energy development in other areas will be considered on a case-by-case basis.

-Designated communication sites are listed in Appendix C-2. Red Mountain (Sec. 25, T. 28 S., R. 32 E., MDB&M) is designated as a new site. Designation of other sites will be considered on a case-by-case basis.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The

percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

Leasable Minerals (including Oil & Gas)

-Approximately 332,000 acres of mineral estate (77%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on 62,000 acres (14%) of the management area, including eligible and designated wild and scenic rivers.

-An estimated 39,000 acres (9%) of Federal mineral estate in the management area) are closed to leasing of oil, gas and geothermal resources.

-About 329,000 acres (76%) are open to development of other leasable minerals. An additional 62,000 acres (14%) are open under major constraints, while 42,000 acres (10%) are closed.

Mineral Materials

-Approximately 387,000 acres (89%) are open to development of mineral materials. An additional 6,000 acres (1%) are open under major constraints, while 40,000 acres (10%) are closed.

Locatable Minerals

-Nearly 383,000 acres of mineral estate (89%) will remain available for development of locatable materials. About 48,000 (11%) are closed within suitably recommended wilderness study areas, in small tract patents, in Recreation and Public Purposes leases or patents, in public water reserves and within certain ACECs.

Recreation

-The Blue Ridge ACEC and Short Canyon are designated as "closed" to OHV use. All other public lands in the management area are designated as "limited".

-In areas designated as "limited", vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-Routes of travel for OHVs and bicycles shall be designated in the Keyesville SRMA according to the criteria in Appendix H-1. An additional site for launching rafts may be constructed at the Bodfish off-ramp (for use in low-water years) following NEPA analysis.

-Public land in NW¼ Sec. 2, T. 26 S., R. 33 E., MDB&M, shall serve as an OHV "open" area in conjunction with the adjacent USFS motorcross site.

-A campground with picnic tables, fire rings, water, sanitation and trash collection shall be developed in the Keyesville SRMA in order to provide for increased recreational opportunities and to limit impacts.

-The discharge of firearms is permitted within the NW¼SE¼ Section 25 in T. 26 S., R. 32 E., MDB&M. A no shooting zone is established for safety reasons in the remainder of the SRMA.

-The majority of the management area will remain open to dispersed camping. Only the North Fork of the Kaweah SRMA and those portions of the Keyesville SRMA outside of

the lower Kern River corridor are closed to dispersed camping.

-The North Fork of the Kaweah SRMA will be managed for increased recreational opportunities and a reduction of environmental impacts. A campground with picnic tables, fire rings, sanitation and trash collection will be developed. Sanitation and trash collection facilities will be provided at all three high use areas: Cherry Falls, Picnic Site #1, and the Advance Colony.

-Additional recreation facilities, including trails, day use areas, and campgrounds, may be developed on acquired lands in the North Fork of the Kaweah SRMA or the Case Mountain area. All facility development in those areas may occur only after development of an activity plan.

-The Canebrake Loop Road, consisting of the Canebrake Road north from Highway 178 to 9 Mile Canyon together with the Long Valley Loop Road, will be designated and managed as a Backcountry Byway, as will the Kelso Valley Road.

-Expand the North Fork of the Kaweah SRMA to include all public and acquired lands within the Case Mountain ACEC; combine both the North Fork of the Kaweah SRMA and the Case Mountain ACEC areas and manage all public lands within these areas as the "Three Rivers SRMA."

-Recreational mining may be allowed at Keyesville under permit within areas withdrawn from the general mining laws. All use must be in compliance with the antiquities legislation. Permits will have the following constraints:

Suction dredging - a valid permit from the California Department of Fish and Game is required. Dredges must have an intake nozzle diameter of 3 inches or less. When working in the Kern River, dredges must be at least 100 feet apart. Highbanking is not permitted.

Sluices/riffle boxes/dry washers - these gold collection devices must have collecting surfaces of less than 6 sq ft.

Mining - mechanized earth moving equipment (backhoes, bulldozers), explosives, mercury or other hazardous chemicals may NOT be used. Vegetation may not be disturbed to conduct recreational mining.

Management Actions

-Sign ACEC boundaries and provide interpretive signs.

-Develop a plan to manage OHV use in Cyrus Canyon.

-Prepare an activity plan for each SRMA. Implement Recreation Activity Management Plans (RAMPs)as well as the CRMP for Walker Pass. Implementation will include, at a minimum, development of mountain bike trails at Keyesville, and campgrounds at Keyesville and North Fork. Continue the development and implementation of AMPs, HMPs, and ACEC management plans.

-Pursue land tenure adjustments.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, CRMPs, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop range improvements to improve grazing management and wildlife habitat.

Alternative 5 - Preferred Alternative

Objectives

1. Improve management efficiency and resource management through land acquisition, exchange, or disposal. Lands with high resource values may be obtained either through purchase, or through the exchange of parcels with low resource values.

2. Provide increased opportunities for recreational uses that are compatible with natural and cultural resource protection, and control those activities which are incompatible with those resources.

3. Encourage geothermal and solid mineral leasing and development, while minimizing residual impacts to sensitive resources.

4. Provide for livestock grazing while minimizing residual impacts and providing for the protection and recovery of sensitive resources.

Land Use Allocations

ACECs

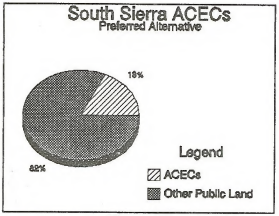


Figure 37

ACECs will be managed according to the directions provided below. Each ACEC is subject to the management terms and conditions specified shown on Table 22a, 22b. Appendix A-3 also shows necessary support actions.

Blue Ridge ACEC

-The Blue Ridge ACEC was designated with the adoption of the South Sierra Foothills Management Framework Plan in August, 1984. As defined, the ACEC encompasses approximately 3,175 acres of public land. Public land and reserved mineral estate within the Blue Ridge Critical Habitat not already part of the ACEC, will be added with adoption of this plan, bringing the totals to 3,196 acres of public land and 2,000 acres of reserved mineral estate. The Blue Ridge ACEC shall be managed for the protection of designated critical condor habitat.

Piute Cypress ACEC

-The Piute Cypress Natural Area was designated on February 4, 1965 (Public Land Order 3530, 30 FR 1194). As defined under this alternative, the area encompasses 200 acres of U. S. mineral estate and 720 acres of BLM administered surface. The Natural Area was "withdrawn to all forms of appropriation under the public land laws including the mining laws." The ACEC shall be managed to protect the Piute cypress grove and other associated sensitive plant species.

Case Mountain ACEC

-Designate the Case Mountain area as an ACEC encompassing 5,654 acres of public land. The Case Mountain ACEC located in the southern Sierra Nevada Mountains contains several unique resources worthy of protective management. Management of this ACEC shall focus on protection of the giant sequoia groves, sensitive plant/animal species found in their undisturbed habitats, cultural resources, and pristine riparian areas.

Walker Pass ACEC

-Designate the Walker Pass and Canebrake Creek Area as an ACEC encompassing 30,900 acres of public land and 4,400 acres of reserved mineral estate. This area shall be managed to protect unique Sierra riparian areas, significant cultural sites, Joshua tree woodland, pinyon woodland, the Walker Pass

ACEC	Terms and Conditions																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Blue Ridge		X									X			X					
Piute Cypress	X						X									X		X	X
Case Mtn		X						X				X			X				
Walker Pass				X		X			X	X									
Erskine Creek	X							X					X				X		
Horse/ Sand Canyon			X		X														
Terms & Cond.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	
Blue Ridge			X	X	X			X											
Piute Cypress		X			X			X									X		
Case Mtn	X				X			X					X	X	X		X		
Walker Pass			X				X	X	X		X	X				X	X	X	
Erskine Creek			X			X		X		X									
Horse/ Sand Canyon			X			X		X											

Table 22a

National Historic Landmark, the Pacific Crest National Scenic Trail, the Owens Peak wilderness study area (part of which has been recommended by the Bureau as suitable for wilderness designation), Native American traditional lifeway values, and special status plant and animal species (four plants that are Category 2 candidates and one Category 1 candidate for listing as threatened or endangered, and several birds that are either candidates for Federal listing as threatened or endangered, or are already listed by the state).

The ACEC shall also be managed to allow appropriate multiple use of the forage resource, the wildlife resource, and dispersed recreational use - especially that associated with the Pacific Crest National Scenic Trail.

Erskine Creek ACEC

-Designate the limestone cave area along Erskine Creek as an ACEC encompassing 1,760 acres of public land and 440 acres of mineral estate. The Erskine Creek ACEC shall

ACEC Terms and Conditions

1. The ACEC will be closed to oil, gas, and geothermal leasing.
2. The ACEC is open to leasing of oil, gas, and geothermal resources subject to major constraints.
3. The ACEC is open to leasing of oil, gas, and geothermal resources subject to no surface occupancy.
4. The ACEC is open to leasing of oil, gas, and geothermal resources subject to minor constraints. The Walker Pass National Historic Landmark (NHL) and all campgrounds may be leased subject to NSO.
5. The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints.
6. The leasing of solid leasable minerals is subject to major constraints.
7. The ACEC is closed to the leasing of solid leasable minerals and to the disposal of mineral materials.
8. The leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints. The extraction of mineral materials for road maintenance within the ACEC may be permitted.
9. Disposals of mineral materials may be authorized outside of or away from riparian zones, joshua trees, sensitive plants, and cultural resources.
10. Sales of mineral materials will not be made within the Walker Pass National Historic Landmark.
11. Lands shall be proposed for and/or remain under withdrawal from the mining laws.
12. 250 acres within the sequoia groves shall be proposed for withdrawal from the mining laws.
13. N½ Sec. 22 and SE¼SW¼ Sec. 15, T. 27 S., R. 33 E., MDB&M, shall be proposed for withdrawal from location.
14. All land within the ACEC is closed to livestock use unless grazing is deemed necessary by the USF&WS to assist in condor recovery.
15. Grazing operations shall be adjusted or terminated within the sequoia community if studies show they have a negative effect upon the plant community.
16. Grazing operations shall be adjusted or terminated within the cypress community if they are shown to have a negative effect upon the plant community.
17. The ACEC is closed to livestock grazing.
18. No plant collecting may occur without a permit.
19. No camping or campfires are permitted within the ACEC.
20. Vehicle access to Case Mountain will be provided for the public from Oak Grove to a parking area in the SW¼ Sec. 24 or N½ of Sec. 26. Public access off designated routes of travel is limited to pedestrian and equestrian access only. Travel within the sequoia groves is limited to pedestrians.
21. Public access off designated routes of travel is restricted to pedestrian access only.
22. Public access off designated routes of travel is restricted to pedestrian and equestrian access only.
23. The ACEC is designated as closed to OHVs. Motor vehicles may continue to be used for administrative purposes.
24. These lands shall be managed under Class II VRM guidelines.
25. These lands shall be managed under Class III VRM guidelines.
26. These lands shall be managed under Classes II, III and IV of the VRM guidelines as shown on Map ___.
27. This ACEC is a right of way, lease, and permit avoidance area. Land use authorizations, including SRPs, authorization to drill wells for water, and geophysical exploration, shall be restricted to those that have no residual impacts to sensitive resources.
28. No new water diversions shall be authorized.
29. Trespass involving any existing unauthorized water diversions shall be resolved.
30. Land within this ACEC is available for exchange for other land within the same ACEC.
31. Private lands within the ACEC with high resource values shall be targeted for acquisition from willing sellers.
32. Christmas tree cutting and fuelwood gathering are prohibited within the boundaries of the ACEC.
33. Management of the sequoias and old growth forest may include prescribed burning and thinning of brush. These actions would only be undertaken if they are necessary for the protection of these trees.
34. Manage the watershed to meet State of California coliform standards. Identify sources of fecal coliform in Salt Creek, and take appropriate action, such as signing or fencing, to mitigate the problem.
35. The Walker Pass CRMP is adopted as the ACEC management plan.
36. Designation of any of these lands as wilderness shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wilderness Management Policy.
37. Designation of any of water courses in these lands as Wild, Scenic or Recreational shall not affect their status as an ACEC, but management actions within the ACEC shall also conform to the Wild and Scenic River Management Policy.

Table 22b

be managed to protect the limestone caves, riparian areas, *Delphinium purpursii* and the Piute Mountains jewelflower (*Streptanthus cordatus* var. *piutensis*).

Horse Canyon/Sand Canyon ACEC

-Designate Horse Canyon/Sand Canyon area as an ACEC encompassing 1126 acres of public land and 640 acres of reserved mineral estate.

The Horse Canyon/Sand Canyon ACEC shall be managed to enhance resource protection and to provide special management attention to significant irreplaceable cultural resource and paleontological resource values and Native American traditional lifeway values.

Biological Resources

-Lands purchased with endangered species compensation funds will benefit those species identified in the applicable USF&WS biological opinion as being impacted. Land acquisitions will target areas identified by the USF&WS and CDF&G as recovery areas, or lands identified by this plan as threatened and endangered species conservation areas. Management of these areas will be to promote recovery of the target species. Special management terms and conditions for these areas include:

-the area shall be open to leasing of oil, gas, and geothermal resources subject to NSO or other major constraints;

-these lands will not be opened to operation of the mining laws and will be proposed for withdrawal from the mining laws if surface lands are acquired on existing split estate;

-these lands will be retained in Federal ownership and closed to disposal under the general land laws;

-ROW authorizations, land use permits, R&PP Act leases, geophysical exploration, and SRPs are restricted to those that are compatible with objectives for the area and which have no residual impacts to sensitive resources;

-public access off designated routes of travel is restricted to pedestrian and equestrian access only;

-camping is restricted to designated locations; and

-manage livestock grazing to foster restoration and enhancement of plant communities and listed plant and animal species.

-Threatened and endangered species habitat will be managed to assist in the recovery of listed species. Unless stated otherwise elsewhere in this plan, threatened and endangered species range will be available for oil, gas, and geothermal leasing subject to major constraints.

Forestry

-Permits for Christmas tree cutting may be considered within two areas. In a 520 acre parcel at Case Mountain (NW¼, NW¼NE¼ Sec. 26, E½ Sec. 27, T. 17 S., R. 29 E., MDB&M.) up to 100 white fir saplings may be cut annually. In a 2240 acre site at Chimney Peak (E½ Sec. 33, W½ Sec. 34, SE¼ Sec. 35, T. 23 S., R. 36 E., MDB&M., NW¼ Sec. 2, Sec. 3, and Sec. 10, T. 24 S., R. 36 E., MDB&M.) up to 200 single leaf pinyon may be harvested. Permits will only be issued for non-commercial purposes.

General

-Public land surrounding Keyesville historic townsite, encompassing 7,170 acres of public land and 864 acres of reserved mineral estate, shall be managed for the enhancement of compatible recreational opportunities (camping, fishing, white-water rafting, hiking, horse-riding, bicycling, nature study, OHV use, and recreational mining) and for its natural resources, especially for those resources which attract visitors (open space, hilly terrain in a blue oak, digger pine savannah

landscape, riverine settings aside challenging white-water, historic/prehistoric values, and a variety of common plants and animals).

Special management terms and conditions for this area include:

-Disposals of mineral materials may be authorized outside of or away from riparian zones, sensitive plants, and cultural resources.

-The discharge of firearms is prohibited south of the Keyesville Road - Black Gulch Road and in E½ Sec. 25, T. 26 S., R. 32 E., MDB&M, in order to increase visitor safety.

-OHV use is limited to designated routes of travel in the area between Pearl Harbor Drive and Keyesville Road.

-The North Fork of the Kaweah River, consisting of 3,440 acres of public land, shall be managed to protect riparian resources, cultural resources, and sensitive vegetation (including but not limited to *Mimulus norrisii*, *Eriogonum nudum* var. *murinum*, and *Brodiaea insignis*), while improving recreational opportunities. Special management terms and conditions include:

-Cherry Falls, Picnic Site #1, and the Advance Colony are closed to overnight camping in order to limit impacts. A picnic area will be developed to provide for day use.

-Acquire lands with high resource values as available. Access to Yucca Flat will be acquired.

-All 1,827 acres of public land within Sections 30 and 31, T. 22 S., R. 37 E., MDB&M. (Deer Spring) shall be managed to protect riparian resources, cultural resources, and habitat for deer. Should these lands be released from wilderness review, the leasing of solid leasable minerals and disposal of mineral materials may occur subject to major constraints.

-The Chimney Peak/Lamont Meadow area encompasses approximately 40,153 acres of public land and 1,260 acres of reserved mineral estate, within: Sections 25 and 26, T. 23 S., R. 35 E.; Sections 25 through 36, T. 23 S., R. 36 E.; Sections 1, 12, 13, 24, 25, 36, T. 24 S., R. 35 E.; Sections 1 through 24, and 26 through 34, T. 24 S., R. 36 E., as well as public land north of Lamont Creek in Section 25 and public land west of Canebrake road in Section 35 in the same township; and T. 24 S., R. 37 E., all public land north of Lamont Creek and west of the Tulare/Inyo County line in Sections, 3, 4, 5, 6, 7, 8, 17, 19, 20, 29, 30, 31, 32. These lands will be managed for the protection of substantial riparian habitat areas, cultural resources, Native American traditional lifeway values, pinyon woodland, for recreational use along the Pacific Crest National Scenic Trail, and for the protection of special status plant species, including *Phacelia novenmillensis*. Special management actions for this land include:

-The area is open to oil, gas, and geothermal leasing subject to minor constraints.

-Disposals of mineral materials may be authorized only outside of or away from riparian zones, joshua trees, sensitive plants, and significant cultural resources.

-The Canebrake/Long Valley Loop Road is designated as a Scenic Backcountry Byway.

-Chimney Creek shall be studied for WSR status.

-Interpretive signs shall be placed along the Backcountry Byway and other high use recreational zones as appropriate.

-The Kernville Hotsprings lie within 160 acres of public land and 110 acres of reserved mineral estate within the S½SW¼ Section 23 and the N½NW¼ Section 26, T. 25 S., R. 33 E., MDB&M. They shall be managed to protect riparian resources and the potential habitat for the alkali mariposa lily (*Calochortus striatus*) and the Kelso Creek monkeyflower (*Mimulus shevockii*). This latter species is the

subject of a petition for Federal listing. Special management terms and conditions for this area include:

-The leasing of oil, gas, & geothermal resources, solid leasable minerals, and disposal of mineral materials may occur subject to major constraints.

-Water diversions are prohibited.

-The Ker 311 National Register site will be managed for the protection of cultural resources. Oil, gas, and geothermal leasing may occur subject to NSO.

Grazing

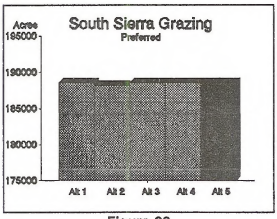


Figure 38

-Livestock grazing shall be authorized on 188,596 acres of public land in 51 allotments at levels shown in Appendix D-1. Allotments shall be managed at the minimum residual mulch levels and according to the constraints shown in Appendix D-1. Utilization of perennial species will be allowed up to 50% of the current annual year's growth and up to 20% on saltbush. Future adjustments shall be based on new information regarding the occurrence of threatened or endangered species, or monitoring data. In riparian areas, grazing will be allowed only during 11/1 - 5/31. If monitoring indicates the riparian area is in poor or fair condition, up to 20% utilization on shrubs and 40% utilization on perennial grasses will be allowed in the riparian zone. If monitoring indicates the riparian zone is in good or excellent condition, the existing utilization levels, up to a maximum 50%, will be allowed in the riparian zone.

-Allotments within potential habitat for any species listed as threatened or endangered by the USF&WS shall be managed at 500 pounds per acre of minimum residual mulch. Future adjustments will be based on monitoring data or new information regarding the occurrence of threatened or endangered species.

-New grazing allotments may be authorized if residual impacts to sensitive resources are not significant. Applications for new grazing allotments will be handled on a case-by-case basis following the guidelines listed in Appendix D-6. Mulch, utilization and seasonal use restrictions will be consistent with guidelines used for existing allotments.

Lands

-A total of 20,000 acres of mostly small and isolated parcels shall remain available for possible disposal (Appendix C-4). Exchange shall be the preferred method of disposal. Lands with moderate or high resource values may be exchanged for other lands with equal or higher values. Sales shall be used only in special circumstances. Parcels in the Lake Isabella area returned to Bureau jurisdiction may be considered for disposal.

-Acquisitions, through exchange or purchase, shall target lands with high resource or recreation values, including lands within ACECs, WSRs, WSAs, NCLWMAs, threatened and endangered species conservation areas, and the South Sierra Cooperative Management Area.

-All public land that has been classified as critical condor habitat will remain in public ownership. All public land that has been classified as essential condor habitat will be considered for disposal only after formal consultation with the U.S. Fish and Wildlife Service. Should these designations be dropped, isolated tracts may be considered for disposal.

-Acquire public access to Case Mountain and Milk Ranch Peak. Public access to Case Mountain shall be managed in accordance with ACEC prescriptions.

-Designated utility corridors throughout the management area include all existing or occupied corridors delineated in the Western Regional Corridor Study of 1986. These right-of-way corridors are one mile wide and follow existing routes. These may include the following existing facilities: larger electric transmission facilities, major pipelines, communication sites and associated pathways, communication lines for interstate use, and Federal, State and interstate highways.

-Rights of way may be granted subject to the following limitations. New right-of-way authorizations within designated corridors will require NEPA analysis. Special stipulations will apply in those areas where threatened and endangered species, cultural resources, or other resource values will be impacted. Sample stipulations are listed in Appendix F.

-Right of way avoidance areas include the following: Ker 311 cultural site, Granite Cave, Walker Pass National Historic Landmark, Wild & Scenic Rivers, ACEC's and lands identified available for disposal.

-Right of way exclusion Areas include Wilderness Areas and WSAs.

-Proposals for wind energy development may be considered, on a case-by-case basis, on lands outside of ACEC's, SRMA's, wilderness areas, and wilderness study areas.

-Designated communication sites are listed in Appendix C-2. Authorization for new sites will be considered on a case-by-case basis.

Minerals, Oil, & Gas

-Lands described below do not include Indian lands, military withdrawals or wildlife refuges, except where noted. These other lands are addressed in the Resource Area-wide land use prescriptions. A summary of acreage within each management category is shown in Appendices E and G. The percentages shown below reflect the indicated acreage in relation to the total number of acres of Federal mineral estate in the management area, excluding lands managed by other Federal agencies.

-Federal minerals within small tract patents shall be managed to minimize impacts to surface owners. Leasable minerals may be leased subject to NSO.

Leasable Minerals (including Oil & Gas)

-Approximately 270,000 acres of mineral estate (63%) will remain available for oil, gas and geothermal leasing under standard terms and conditions.

-An estimated 26,000 acres (6%) of the management area will be open for leasing subject to minor constraints.

-Major constraints, including NSO, shall be required for any oil, gas or geothermal leasing on 94,000 acres (22%) within certain ACECs, within corridors eligible for Wild and Scenic River Designation, and threatened and endangered species habitat.

-Nearly 42,000 acres (10% of Federal mineral estate in the management area), including designated wild and scenic rivers, are closed to leasing of oil, gas and geothermal resources. This includes sensitive cultural resources at the Walker Pass National Historic Landmark in T. 26 S., R. 37 E., Granite Cave in T. 26 S., R. 33 E., and the Ker 311 site in T. 26 S., R. 34 E., MDB&M.

-Approximately 302,000 acres of Federal mineral estate (70%) are open to development of other leasable minerals. Leases will be subject to major constraints on 86,000 acres (20%) within certain ACECs and within threatened and endangered species habitat. An additional 45,000 acres (11%) are closed.

Mineral Materials

-Roughly 338,000 acres (78%) are open to development of mineral materials. Sales will be subject to major constraints on 55,000

acres (13%) within certain ACECs and within threatened and endangered species habitat. An additional 40,000 acres (9%) are closed, including Walker Pass, Granite Cave, and Ker 311 cultural sites.

Locatable Minerals

-About 383,000 acres of mineral estate (89%) will remain available for development of locatable materials. About 49,000 (12%) are closed within suitably recommended wilderness study areas, in small tract patents, in Recreation and Public Purposes leases or patents, in public water reserves, areas of significant cultural resources (Walker Pass NHL, Granite Cave, and Ker 311), and within certain ACECs. This includes an additional 680 acres that will be withdrawn from the general mining laws in the Keyesville area over and above the existing withdrawal. These lands include: S½SW¼ Sec. 25, NE¼NE¼ Sec. 35, S½NE¼, N½NW¼ Sec. 36, T. 26 S., R. 32 E., MDB&M.

-Recreational mining may be allowed within areas near Keyesville that are withdrawn from the general mining laws, subject to permit. All use must be in compliance with cultural resources legislation. Permits will have the following constraints:

> Suction dredging - requires a valid permit from the California Department of Fish and Game. Dredges must have an intake nozzle diameter of 3 inches or less. When working in the Kern River, dredges must be at least 100 feet apart. Highbanking is not permitted.
>
> Sluices/riffle boxes/dry washers - these gold collection devices must have collecting surfaces of less than 6 square feet.
>
> Mining - mechanized earth moving equipment (backhoes, bulldozers), explosives, mercury or other hazardous chemicals may NOT be used. Vegetation may not be disturbed to conduct recreational mining.

Recreation

-The Blue Ridge ACEC and Short Canyon are designated as "closed" to OHV use. All other public lands in the management area are designated as "limited".

-In areas designated as "limited", vehicle use by the public is restricted to designated routes of travel. Designated routes of travel generally include all roads and jeep trails shown on BLM surface management maps, as well as those roads in oilfields that are identifiable and mapped from 1982 aerial photographs of the area or were subsequently authorized. All maps, including those with specific modifications to the road network, are on file at the Caliente Resource Area office. Future revisions to route designations may be made in activity plans, subject to the criteria listed in Appendix H-1, NEPA analysis, and public review. The use of non-designated roads may be approved for authorized activities (such as for oil and gas development) and for administrative purposes.

-Cherry Falls, Picnic Site #1 and the Advance Colony (all three are located in the North Fork SRMA) will be managed to concentrate use and limit recreational impacts. A picnic area with sanitation, fire rings and trash collection will be established in each area, and they will be closed to overnight camping.

-Routes of travel for OHVs and bicycles shall be designated in the Keyesville SRMA. An OHV trail system will be limited to routes in the area between Pearl Harbor Drive and Keyesville Road in Sections 35 and 36, T. 26 S., R. 32 E., and Sec 1, T. 27 S., R. 32 E., MDB&M.

-Opportunities for mountain bicycling, hiking and horse-riding shall be developed at Keyesville.

-Manage the Keyesville SRMA for intensive recreation use. Develop a campground with

campground host, designated sites, picnic tables, barbecues, fire rings, water, sanitation and trash collection. Dispersed camping in the Keyesville SRMA will require permit.

-The existing two white-water launch sites along the Lower Kern River shall be maintained and an additional site may be constructed at the Bodfish off-ramp (for use during low-water years) contingent upon NEPA analysis.

-Land within wilderness study areas that is released from further study shall be managed to maintain and protect primitive values.

-All campgrounds shall be managed to enhance opportunities for recreation. Oil, gas, and geothermal leasing may occur subject to NSO.

-The Canebrake Loop Road, consisting of the Canebrake Road north from Highway 178 to 9 Mile Canyon together with the Long Valley Loop Road, will be designated and managed as a Backcountry Byway. The Kelso Valley Road will also be designated and managed as a Backcountry Byway.

-Expand the North Fork of the Kaweah SRMA to include all public and acquired lands within the Case Mountain ACEC; manage all public lands within these areas as the "Three Rivers SRMA."

-Additional recreation facilities, including trails, day use areas, and campgrounds, may be developed on acquired lands in the Three Rivers SRMA. All facility development in those areas may occur only after development of an activity plan, and must be compatible with the protection of sensitive biological and cultural resources.

Management Actions

-Sign ACEC boundaries. Develop interpretive programs for ACEC's, as well as Deer Spring, Kernville Hot Spring, Keyesville, and the North Fork of the Kaweah River.

-Prepare an activity plan for each SRMA. Implement Recreation Activity Management Plans (RAMPs)as well as CRMPs for Walker Pass and Keyesville. Implementation will include, at a minimum, development of mountain bike trails at Keyesville, a campground at Keyesville, and a day use area at North Fork.

-Pursue land tenure adjustments to meet stated objectives.

-Develop a monitoring plan to address maintenance or improvement of watershed and water quality.

-Continue the development and implementation of AMPs, HMPs, CRMPs, and ACEC management plans.

-Inventory threatened and sensitive species populations and habitat quality within oil fields and grazing allotments, as time and funding allow. Encourage habitat rehabilitation in an effort to reduce the sensitivity of the species.

-Develop and implement studies to determine effects of grazing on listed plant species.

-Develop water and other range improvements as needed to improve grazing management and wildlife habitat.

-Sign areas and routes closed to motor vehicles, camping, or shooting as specified.

-Clearly post public land along the North Fork of the Kaweah River.

-Apply for water rights along the North Fork of the Kaweah River in order to reserve water for wildlife and riparian values.

-Study suitability of the North Fork of the Kaweah for Wild and Scenic River status.

-The Pearl Harbor Memorial Tree Plantation will be managed in association with the Pearl Harbor Survivors Association.

-The MOU with the USFS for managing the white-water Lower Kern River for commercial and individual raft trips shall be continued.

-Law enforcement coverage shall be increased to ensure safety of visitors and to eliminate illegal activities.

-Pursue nomination of the Keyesville complex (townsite, fort, cabin, and cemetery) to the National Register of Historic Places.

Rationale for the Preferred Alternative

Alternative 5 - The public lands within the South Sierra Management Area provide opportunities not found on other public lands covered under this plan. Recreational activities, including camping, recreational mining, and white water rafting, are dominant here. Grazing and mining occur, as do a number of rare and unusual biological resources.

The Preferred alternative provides for increased recreational development to take advantage of these opportunities. A new campground is proposed at Keyesville, and a day use area would be developed in the Three Rivers area. Two Backcountry Byways would also be designated, and bicycle and equestrian trails would be developed at Keyesville. When combined with the existing campgrounds and the Pacific Crest Trail, these actions should more than satisfy recreation demand in the area.

Resource protection should benefit from the retention of two ACECs, and the designation of six more. Sequoias, sociocultural values, and riparian areas would all receive additional protection under this alternative. Increased safeguards on potentially disturbing activities should safeguard plants and animals outside of ACECs.

The administrative adjustment of lands in the area would continue. About 20,000 acres would be available for disposal, primarily through exchange. Lands along the South Fork of the Kern River would be a high priority for acquisition, for their sensitive resource values.

Livestock grazing would be characterized by increased protection for riparian areas and other sensitive resources, while sustaining minimal impacts to livestock operations. Mining and related minerals activities could also continue, with additional safeguards.

The net result of the Preferred alternative would be a marked increase in the protection of sensitive resources and provision for increased recreational demands, while minimizing impacts to other users and resources.

Chapter 4
Environmental Consequences

Giant Sequoia at Case Mountain

Chapter 4 - Environmental Consequences

Introduction

This chapter analyzes the environmental impacts of the Resource Management Plan (RMP) alternatives presented in Chapter 3. Major resources or topics that were identified as receiving potentially significant impacts are addressed in detail in this chapter. The rationale for dismissing other topics from intensive analysis is also included.

In order to adequately analyze impacts, the reasonably foreseeable development and levels of use are projected for each alternative. For each alternative, projections are described for each category of development or use, such as mineral development and recreation use, with the potential to cause environmental impacts. These development and use scenarios are used as a basis for analyzing impacts.

An impact analysis for the entire Resource Area is presented in this chapter. The analysis includes the direct, indirect, and cumulative impacts of each alternative. Impact summary tables on page 18 provide comparative analyses of the alternatives and their impacts on the topics selected for analysis by management area.

Mitigating measures designed to avoid or reduce the environmental impacts were incorporated into the various alternatives. Impacts identified in this chapter are considered unavoidable net impacts remaining after the implementation of these measures.

In most cases, subsequent environmental analysis will be required to implement resource management allocations. More detailed or site-specific studies will be conducted in compliance with the National Environmental Policy Act (NEPA) and its implementing regulations as the need arises. The analyses of impacts from oil and gas leasing, particularly on certain Department of Defense lands (Port Hueneme), as well as the analysis of certain activity plans (Walker Pass CRMP, Carrizo Plain Natural Area) were conducted on a level determined satisfactory to meet NEPA requirements. Impacts or resources not described in this section are insignificant.

The baseline assumptions for analysis, including the projections of reasonably foreseeable development, are described in the next section. Following that are descriptions of the impact topics and the methodology of estimating the effects of the alternatives, concluding with the actual analysis of the environmental consequences.

Analysis Assumptions

The analysis of the environmental consequences is a difficult art. Factors as disparate as the price of oil, rainfall, population growth, and politics can have significant effect on resources in the planning area. It is therefore imperative that certain assumptions be made - both as a starting point for those conducting the analysis, and also to help the public understand how conclusions were derived.

The general assumptions determine the constraints for analysis. They remain constant under all alternatives. These are followed by the Reasonably Foreseeable Development (RFD) scenarios. These project events or development over the next ten to fifteen years, and vary to reflect the direction of the various alternatives. The General Assumptions and the RFD scenarios form the foundation for analysis of the Environmental Consequences.

General Assumptions

1. Only significant adverse and beneficial changes or impacts, which vary by resource and alternative, would be fully analyzed. Some less-than-significant impacts are presented to better illustrate the scope and effect of a management action in some cases, or to differentiate between significant and non-significant impacts.

2. Short term impacts are those that would occur within ten years of plan implementation. Long term impacts would occur after ten years, but generally before twenty years. Unless otherwise stated, changes or impacts described in this analysis are short term.

3. Land use allocations will go into effect 30 days after the Approved RMP and Record of Decision are signed by the BLM California State Director, but it was assumed that increased funding and staffing for implementation would not be available for at least three years after the plan goes into effect. It was assumed that this would delay full implementation of the management actions until the year 2003.

4. It was assumed that this plan will have a minimum life span of ten to fifteen years. Under existing conditions and with proper monitoring and maintenance, it may guide management for twenty or more years.

5. Implementation of any given alternative would comply with Federal regulations and BLM policies. The analysis assumed that the standard operating procedures, stipulations, and mitigating measures in this plan would be followed and applied when appropriate. The consequences described in this chapter are those remaining after implementation of these measures.

6. Unless otherwise specified, impact estimates were based upon information currently available for the area.

7. The effects of actions not included in this plan, along with significant impacts not described due to a lack of information, would be addressed in future environmental reviews when necessary.

Reasonably Foreseeable Development Scenarios

Lands

Land Tenure Adjustment. The Caliente Resource Area contains approximately 570,000 acres of public land surface of which 39,000 acres will eventually be closely reviewed for disposal to the private sector through land exchanges and various types of land sales. The Resource Area also contains approximately 452,000 acres of Federal reserved mineral estate, of which approximately 400,000 will eventually be reviewed for disposal to the private sector. In general, the lands to be disposed of consist of scattered, isolated parcels from 0.1 acre to 3,000 acres in size. Most of these parcels lack physical or legal access for the public and BLM personnel. They are generally hilly or mountainous, and receive little public use due to their remoteness and inaccessibility. However, they are of interest to adjacent landowners who often like to acquire these public land parcels to add to their existing holdings. At least 95% of the public land identified for disposal will be considered for exchange (not sale), and approximately 75% of these will ultimately be found suitable for disposal. This is based on past experience which shows that about 25% of the lands that are intensively reviewed for disposal ultimately are retained in Federal ownership due to resource considerations (rare plants, cultural sites, etc.).

Disposal of public lands through exchanges may include some or all of the mineral estate, depending on the mineral occurrence of each parcel. On those parcels that have a medium

to high potential for certain minerals, mineral rights are usually retained. All mineral rights are retained in Federal ownership on Recreation and Public Purposes Act sales. Color-of-Title sales may or may not retain mineral rights.

Based on past trends, it is expected that most of the public lands in Ventura and Santa Barbara Counties will be disposed of. In San Luis Obispo County, most of the public lands in the western part of the County will be exchanged for lands in the eastern part of the County (Carrizo Plain area). Kings County may see disposals of scattered parcels in the Diablo Range for areas in the Kettleman Hills. Tulare County will probably see exchanges of scattered parcels of public land along the Sierra Nevada foothills for areas near Case Mountain, Blue Ridge, and the Chimney Peak-Kennedy Meadows area. Kern County will probably see exchanges of many scattered parcels of public land in the Lake Isabella to Tehachapi area for lands in the Carrizo Plain, Chimney Peak, and South Fork Kern River areas. The lands that will be acquired will be rural, uninhabited lands that are adjacent to large blocks of public land, and that contain high resource values. These values range from rare, threatened or endangered species habitat, important riparian zones, and high recreation potential to scenic or wilderness areas.

Land uses are expected to remain non-intensive on the vast majority of public lands transferred to the private sector via exchange or sale. Public lands transferred will be restricted by county zoning designations for open space (40 to 320-acre minimum parcel size), agriculture (40 to 320-acre minimum parcel size), and rural residential (2 to 40-acre minimum parcel size). It is anticipated that residential or commercial development will be constrained on the majority of public land transferred to private sector due to lack of physical or legal access and its hilly or mountainous character. It is estimated that over a 15-year period, approximately 10 percent of the acreage transferred to the private sector will be developed with roads, buildings, etc.

Existing land uses in the Resource Area include irrigated agriculture and oil production in the San Joaquin Valley, livestock grazing in the Sierra Nevada foothills and coastal hills, and rural residential uses near Lake Isabella and in much of the coastal counties. Urban and rural suburban growth is expected to continue in the Sierra Nevada foothills (Keene Ranch), near Grapevine (San Emigdio Ranch), around Bakersfield, and in western San Luis Obispo and Santa Barbara Counties. As these and other areas develop, the public pressure on isolated public lands increases and BLM's ability to manage them effectively decreases. This public pressure usually takes the form of trespass roads and water developments, OHV use, hunting, fencing, wildfire occurrence, and trash dumping. Privatizing these isolated parcels streamlines BLM's management and helps meet the needs for community expansion.

It is estimated that the demand for R&PP Act transfers will be about one every two years over the next 15 years. Many of the BLM lands to be exchanged will be used to acquire lands in the Carrizo Plain Natural Area, a project of national importance involving habitat for several endangered plant and animal species. BLM, The Nature Conservancy, and the California Department of Fish and Game have been acquiring lands in this 180,000 acre cooperative project since 1988. It is expected that acquisitions through exchange will continue through 2005 in order to complete the project.

The many acres of split estate minerals are a potential source of value for the exchange program or may be sold to the surface owner under Section 209 of FLPMA. Most of these mineral estates were retained by the Federal government under the Stockraising Homestead Act when the surface estate was homesteaded in the 1920's and 1930's. It is expected that the majority of these mineral estates have no potential or low potential for mineral value, and as such are very unlikely to be developed for

mineral production. However, based on past experience, the surface owner usually has a desire to own the surface as well as the mineral estate in order to enhance their control over their land. The disposal of split estate minerals is a common occurrence under Section 209 and it is expected to continue at the rate of about 200 acres per year for the next 15 years. The exchange of split estate minerals is expected to increase to approximately 2,000 acres per year for the next 15 years.

Alternative 1 - No Action. Approximately 40,000 acres of public land would be considered for disposal with 30,000 acres actually disposed after environmental review. Under this alternative, opportunities have been identified to acquire approximately 99,000 acres of land in areas with high resource values. Acquisition of lands through exchange would target the Carrizo Plain Natural Area and private inholdings within wilderness areas. The private land tax base as a result of these Land Tenure Adjustments would decrease slightly in San Luis Obispo, Kern and Tulare Counties and increase in Santa Barbara, Ventura and Kings Counties under Alternative 1. It is expected that between approximately 25,000 to 40,000 acres would actually be acquired under this alternative.

Alternative 2 - Resource Protection Emphasis. Predictions under this alternative would be the same as Alternative 1, except that 26,000 acres of public land would be considered for disposal with 20,000 acres actually disposed after environmental review. Opportunities for land acquisition have been identified on approximately 196,000 acres of land with high resource values. It is expected that between approximately 49,000 to 78,000 acres would actually be acquired under Alternative 2.

Alternative 3 - Administrative Adjustment. Predictions would be the same as Alternative 1, except that 65,000 acres of public land would be considered for disposal with 49,000 acres actually disposed after environmental review. Opportunities for land acquisition have been identified on approximately 158,000 acres of land with high resource values. It is expected that between approximately 40,000 to 63,000 acres would actually be acquired under Alternative 3.

Alternative 4 - Development Emphasis. Again, projections would be the same as Alternative 1, except that 60,000 acres of public land would be considered for disposal with 45,000 acres actually disposed after environmental review. Opportunities for land acquisition have been identified on approximately 104,000 acres of land with high resource values. It is expected that between approximately 26,000 to 42,000 acres would actually be acquired under Alternative 4.

Alternative 5 - Preferred. Projections would be the same as Alternative 1, except that 55,000 acres of public land would be considered for disposal with 41,000 acres actually disposed after environmental review. Opportunities for land acquisition have been identified on approximately 162,000 acres of land with high resource values. It is expected that between approximately 41,000 to 65,000 acres would actually be acquired under Alternative 5.

Land Use Authorizations. Due to constraints on public lands with high resource values, including right-of-way avoidance and exclusion areas, the number of land use applications submitted for authorization on public lands may vary. Projections described are expected to change by alternative.

Rights-of-Way. Over 600 right-of-way authorizations exist in the Caliente Resource Area with approximately 65% of them located on public land within the Valley Management Area. These rights-of-way authorize a variety of uses on public land, including pipelines, roads, utility lines, and communication site facilities. Of the more than 400 rights-of-way in the Valley Management Area, approximately two-thirds are associated with development of oil and gas. The need for rights-of-way associated with oil and gas development and cogeneration facilities is expected to continue at the current rate, approximately 30 applications per year, and possibly increase as

the nation's energy needs increase. Development of rural residences and other impacts associated with urban growth in the Lake Isabella, Three Rivers and Kennedy Meadows areas continue to increase the demand for right-of-way authorizations. It is expected that the demand will continue at the current level, approximately four applications per year, as the needs of the public associated with development of their private land affect adjacent public lands.

Wind Energy. There are currently no land use authorizations in the Caliente Resource Area for wind energy development. The suitable locations for development occur in the South Sierra Management Area along the Sierra Nevada Mountains and Tehachapi Mountains. Most of the public land suitable for wind energy development is located along the boundary between the Ridgecrest Resource Area and Caliente Resource Area. Rights-of-way already exist for wind energy development in the Ridgecrest Resource Area where coordination efforts between the two offices has occurred throughout the approval process. It does not appear that future development of wind energy will increase over the life of the plan since most of the suitable public land for this type of use is already occupied. Other suitable locations for wind energy development have not been identified by industry.

Alternative 1 - No Action. The number of land use applications is not measurably impacted.

Alternative 2 - Resource Protection Emphasis. The number of applications may be reduced by 20%.

Alternative 3 - Administrative Adjustment. The number of applications may be reduced by 15%.

Alternative 4 - Development Emphasis. The number of applications may be reduced by 10%.

Alternative 5 - Preferred. The number of applications may be reduced by 15%.

Livestock Grazing

Background. About one-half of the public land within allotments in the Caliente Resource Area consists of small tracts, intermingled and usually unfenced from the large acreages of private lands that are owned or leased by the grazing operator. The remaining public lands within the resource area are in large, well blocked patterns. All public land within the Coast and Valley Management Areas, as well as one fourth of the public land within the South Sierra management area, is leased under Section 15 of the Taylor Grazing Act. Public lands in the remaining three-fourths of the South Sierra Management Area are administered by permits issued under Section 3 of the Taylor Grazing Act.

Some of these allotments have pastures totally comprised of public land. Most allotments, however, have some private lands fenced in with the public land. The amount of land ownership in an allotment can range from a low of 80 acres of public land fenced within 2,000 acres of private land, to a high of 25,000 acres of public land with no private land fenced within it.

Livestock operations that hold either public land grazing leases or permits within the Coast and South Sierra Management Areas consist of either cow/calf or stocker cattle operations. Livestock operations in the Valley Management Area include cow/calf and stocker cattle operations, as well as range sheep operations. There are 52,933 AUMs of forage produced on 456,213 acres of public lands within 110 allotments leased or permitted to 89 grazing operators in the Caliente Resource Area. The dependency of an individual grazing operation on public land forage varies tremendously throughout the Resource Area. Impacts from change could range from forcing an operation entirely out of business, to causing slight management changes, to no effect at all. Significance of public land forage to the regional industry is thus expressed as an average dependency, taking into account the general socio-economic characteristics of the region. The forage produced (491 AUMs) on

the 3953 acres of public land within the Coast Management Area is regionally insignificant to the livestock industry. The forage produced (38,766 AUMs) on the 263,684 acres of public land within the Valley Management Area is low to moderately significant to the livestock industry in the region. The forage produced (13,676 AUMs) on the 188,596 acres of public land within the South Sierra Management Area is moderately to highly significant to the livestock industry in the region, as is the case with the forage produced on adjacent US Forest Service lands.

Existing Allotments - Alternative 1 - No Action. Under Alternative 1 livestock grazing would continue on all but 3,432 acres in seven allotments, but the 500 lbs./acre mulch requirement would probably result in two years of no grazing out of ten for public land within each allotment due to low forage production resulting from below normal rainfall. This mulch requirement will also result in less forage available for livestock grazing on poor forage years than would have been allowed in the past. Most of the 51 allotments in the Valley Management Area would have the season of use restricted to winter or winter/spring use.

These changes will most likely result in new fences being constructed to separate public from private land. This will allow livestock operators the flexibility to use private lands as needed, and the use of public land as the new guidelines allow. The amount of fencing needed to accomplish this separation is predicted to be in the hundreds of miles, possibly more than 300 miles.

Range improvements would continue at the rate of 1-2 spring developments and 10-15 miles of new fence constructed each year, for the next ten years. Prescribed burning to maintain an early seral stage on the chaparral plant community would continue on a regular basis on 1627 acres in one allotment within the Coast Management Area.

Alternative 2 - Resource Protection Emphasis. Under Alternative 2, there would no longer be grazing on 24,219 acres of public land in 17 allotments. This would result in numerous livestock trespass problems from private lands, and ultimately the need for hundreds of miles of new fence to segregate private from public lands. This action would most likely also result in new water pipeline construction to accommodate the new fencing patterns. Undoubtedly 10,000 to 20,000 acres, or more, of private lands would become unusable for livestock grazing due to the intermingled land patterns and the expense of new fencing. On the allotments where grazing would still be authorized, the 700 lbs./acre of mulch requirement would probably result in five years of no grazing out of ten for public land within each allotment. Again, this mulch requirement would result in less forage available for livestock grazing on poor forage years than would have been allowed in the past.

Alternative 3 - Administrative Adjustment. Under Alternative 3 the projections would be the same as Alternative 1.

Alternative 4 - Development Emphasis. Livestock grazing under Alternative 4 would continue at current land use plan levels and would not change for the next fifteen years in the resource area. The main influence that the continuation of current grazing management will have on the associated livestock operation is the fact that the private lands can continue to be grazed without the need to fence out public land. The need to construct hundreds of miles of fencing to fence out all suitable parcels of public land within the resource area would be avoided.

Alternative 5 - Preferred Alternative. Under Alternative 5 the projections would be the same as Alternative 1.

Projection - New Allotments. Over 95% of the suitable rangelands within this resource area are currently allotted. 30% of those public land parcels that are available for grazing but still unallotted will probably be grazed to a limited extent in the future. However, most of these parcels will most likely not be grazed due to concerns about impacts to sensitive resources. These parcels will

MANAGEMENT LEVELS PROPOSED FOR UNALLOTED PARCELS*

PROPOSED ALLOTMENT NUMBER	ACRES	AUMs	KIND	SEASON OF USE	% FED	RANGE TYPE	MIN. MULCH
A5	630	64	C	1/1 - 4/30	100	A	300
A6	93	36	C	12/1 - 5/31	100	A	500
A7	660	165	S	12/1 - 5/31	100	P/A	500
A8	60	20	C	1/1 - 4/30	100	A	300
A9	120	35	C	2/15 - 5/15	100	A	300
A10, A11, A12	60	12	C/H	12/1 - 5/31	100	P/A	500
A13	120	24	S	12/1 - 5/31	100	P/A	500
A15	1,485	130	C	10/1 - 5/31	68	P/A	500
A16	289	36	C	10/1 - 5/31	9	A	500
A17	6,974	444	C	10/1 - 5/31	56	A	500
A18	768	77	C	12/1 - 5/31	100	A	500

*Applies only to Alternatives 1, 3, 4 and 5. No grazing is proposed for unalloted parcels under Alternative 2

EXPLANATION

KIND	=Kind of livestock: C=Cattle, S=Sheep, H=Horses
% FED	=Percent Federal range. Rate at which public land grazing fee is adjusted to account for forage produced on rancher controlled private lands.
RANGE TYPE	=Predominant forage type: A= Annual grasses, P=Perennial shrubs.
MIN MULCH	=Minimum residual dry matter (MULCH) required, expressed as LBS/ACRE.

Table 23

eventually need to be fenced in order to eliminate the risk of unauthorized grazing. At a minimum, the estimate for fencing needed would be over 120 miles. This is even applicable to Alternative 2 where no new grazing allotments would be authorized.

Table 22b displays proposed livestock management levels for unallotted public land parcels that have pending livestock grazing applications. These use levels are proposed through Alternatives 1, 3, 4, and 5 to provide a management scenario for analysis. Alternative 2 would have no new grazing allotments authorized. The final approved use levels will be modified to meet the selected guidelines for existing allotments.

Minerals

Deposits of solid mineral resources in quantities and concentrations sufficient to be economically developed are rare in nature. Exploration for these resources is risky business, involving considerable expense with exploration over large areas, without any guarantee of success. Since mineral deposits are rare in nature, and are typically difficult to find, large areas are necessary for exploration.

Only a small fraction of targets identified through exploration for more intense investigation yield an economically viable deposit. Large areas of the southern Sierra Nevada are presumed to have low or moderate potential for the development of solid mineral resources, since mineral occurrences are scattered throughout the area. However even at locations where occurrences are known, rarely are they found in quantities and concentrations that are economically viable.

Changes in extraction technology, changes in world or local supplies, and new uses for commodities may be found which may make currently non-viable deposits economically feasible for development. For example, in the future expanded use of electric cars may create a demand for certain metals for batteries that are not now in great demand. Until recently gypsum, a soil amendment used by San Joaquin Valley farmers, was obtained as a by-product from Idaho phosphate processing. With the loss of this source, the gypsum deposits in the San Joaquin Valley have received renewed attention, many after laying idle for 30 years. Other future changes likely to occur include encroaching urbanization, especially in the Lake Isabella area and increasing demand for sand, gravel, aggregate, and fill material. Since BLM administers a considerable acreage in the area with potential for mineral materials, increased demand is expected. Projected depletion of many current U. S. phosphate sources early in the next century will likely renew interest in local deposits of this essential plant nutrient.

Solid Mineral Resources. Table 22c, based on Bureau of Mines, US Geological Survey and California Division of Mines and Geology data shows that a great variety of mineral commodities have been produced and are known to occur within the boundaries of the Caliente Resource Area. Presently sand and gravel, rock, gypsum, siliceous shale (listed under clay) and minor amounts of gold are produced from public lands.

In 1991 California produced over three billion dollars worth of non-fuel mineral products. This total is divided between industrial minerals ($1.8 billion, 59%), gold and silver ($400 million, 13%) and other metallic and non-metallic minerals ($844 million, 28%). Construction materials (cement, clay, lime, sand and gravel and stone) accounted for forty-four percent of the total, worth $1.3 billion.

Within the Caliente Resource Area there are two major active mines producing siliceous shale for absorbent products from mining claims administered by BLM. Both are situated in the vicinity of Taft. Near Loraine in the southern Sierra Nevada, a proposed open pit gold mine is permitted, however economics of the project have delayed start-up. The mine will be on private land, however some ancillary facilities are proposed for public land. Also in the southern Sierra Nevada, there is one active small underground gold mine. Much of the mining activity is casual use gold dredging, or dry placer mining. Typically, the Caliente Resource Area receives between 5 to 10 mining Notices, submitted pursuant to the Bureau's Surface Management Regulations (43 CFR 3809), and 1 to 2 mine Plans of Operation or Plan modifications per year. Most mining activity on the Notices is little more than assessment work. Nearly 90 percent of the Notices are for small lode gold or placer deposits in the Keyesville area of Kern County. There are no active Plans or Notices in the Coast Management Area. In the Valley Management Area the two producers of absorbent products have active mining Plans.

Metallic Mineral Potential Within California, production of gold has increased in value from about $3 million in 1981 to nearly $400 million in 1991. During this period of time two major new gold deposits have been discovered in the state, the Mesquite mine in Imperial County, and the Castle Mountains deposit in San Bernardino County. At the Mesquite, the area had been sampled by amateur prospectors as well as major mining companies without finding success. The Castle Mountains deposit, the site of a minor gold rush early in this century, was no doubt cursed as a humbug by the investors who lost big when the mines failed to produce. Exploratory drilling discovered two ore bodies

MINERAL OCCURRENCES AND PRODUCTION			
Mineral/ Element	Occurrences	Past Prod	Present Prod
ANTIMONY	16	9	
ASBESTOS	6		
BARITE	10		
BORON	3	2	
LIMESTONE	29	2	8
CHROMIUM	89	21	
CLAY	20	10	3
COPPER	64	2	
DIATOMITE	22		3
FELDSPAR	5		1
GEMSTONE	7		
GOLD	245	94	
GYPSUM	32	5	7
GRAPHITE	2		
IRON	4		
LEAD	11		
MAGNESIUM	48	1	
MANGANESE	41	4	
MERCURY	65	14	
MICA	1		
MOLYBDENUM	5		
NICKEL	5		
PHOSPHATE	4		
PLATINUM	2		
PERLITE	1		
PUMICE	2		
QUARTZ	10		
SAND & GRAVEL	105	7	70
SILVER	1	2	
SODIUM		2	
STONE	84	6	30
SULFUR	2		
TIN	5	4	
TALC	2		
TUNGSTEN	122	34	
TURQUOISE	1		
URANIUM	64	6	
ZINC	12		

Table 24

with reserves estimated at two million ounces. One ore body is buried under 300 feet of alluvium, and each are only 1000 feet in diameter.

The Caliente Resource Area is dotted with gold mines and prospects, some of which were productive, most of which were not. In light of the discoveries cited above, as well as numerous others, the potential of this area is difficult to evaluate.

The area of greatest gold development potential is the intrusive volcanic (hypabyssal) rocks near Loraine area. In Nevada and the California desert (ie. Mojave, Castle Mountains) rocks similar to these are one of the sources of large quantities of gold with subordinate silver. In this area there are a number of inactive gold and silver mines, and an antimony mine. Three other areas also have high gold development potential: Havilah, Keyesville, and the Cove District southwest of Kernville.

Tungsten mines literally pepper the southern Sierra Nevada. Most of the tungsten mines in this resource area were prospects or minor producers. The metasedimentary rocks which host these deposits have moderate development potential. New interest in tungsten-gold-bearing skarn deposits may trigger renewed exploration here. Along the foothills of the Sierras north of Bakersfield, there are a number of scattered gold mines, which historically have been productive. These mines are often associated with copper mines. This area has moderate potential for gold development. Within the Coast Management Area and portions of the Valley Management Area, there are several formerly productive mercury mines. The economic outlook for development of these mines for mercury remains remote due to the large supply of by-product mercury produced at gold mines in Nevada and the resultant low price. However, the local mercury mines will continue to be evaluated for the presence of associated gold. In each management area there are old chromite mines and prospects. Most of these deposits were small and only worked during short times of high prices. There is little likelihood of renewed interest during the next ten years. Platinum group metals are associated with the chromite

deposits, however concentrations are extremely low, in the range of parts per billion.

Expected Locatable Mineral Activities

Mining claim location (staking): The staking of a mining claim involves surveying and monumenting. Surveying may require brushing claim boundaries. Work is accomplished on foot accompanied by 4 wheel drive passenger vehicles, motorcycles or ATVs. Monuments consist of 4" x 4" wood posts, rock piles, or capped metal tubing. Surface disturbance is minimal.

We anticipate 100 to 500 new mining claims being located per year, with about equal numbers being abandoned annually.

Prospecting: Mining claims are prospected using various geochemical and geophysical methods and geologic mapping. Old underground mines are also geologically mapped and sampled. Samples of rock and soil are usually less than 10 pounds. Very limited clippings from plants may also be sampled. Sometimes short term occupancy, in a trailer or camper may be associated with prospecting. Work is accomplished with hand tools, electrical apparatus, wheeled vehicles and human labor. Surface disturbance is minimal and temporary. Mining claim assessment work often falls into this category.

Exploration: After initial prospecting, areas of anomalous mineralization are targeted for more detailed sampling, and geologic mapping or drilling to determine the extent of the mineralized rock and if it is feasible to mine the deposit at a profit. New road construction or road refurbishing will be necessary to reach areas to be drilled or trenched. Drilling often can be accomplished within the confines of a 12 foot wide road without construction of a pad. If needed, a pad would measure no more than 20 by 20 feet. Refurbishing old underground workings may be required in order to map and sample parts unsafe to enter. Underground exploratory drilling may take place. Bulk sampling of less than 1000 tons of rock may be required for metallurgical testing. Surface disturbance will usually total less than 5 acres. Short term occupancy, in a trailer or camper may be associated with exploration. Initial phases of exploration may require up to 10 surface drill location sites and up to 5 miles of new or refurbished roads.

Equipment used can consist caterpillar-type dozers, track or tire mounted drill rigs, water trucks, track or tire mounted hydraulic shovels or loaders, backhoes, dump trucks, air compressors, electrical generators, muckers and explosives.

We anticipate that three deposits will be explored by drilling or extensive sampling in the next ten years, resulting in a total of about 100 acres of surface disturbance.

Mine development: Mine development occurs when the mining company determines that it is feasible to mine the deposit at a profit. Development involves preparation of the site for mineral extraction. This may involve removal and stockpiling of soil, removal of overburden from the mineral deposit, construction of tailings ponds, bringing utilities to the site, developing sources of water, construction of mineral processing facilities and other surface plants (crushing and ore processing facilities, offices, weigh scales). A wide diversity of earthmoving and construction equipment may be used. Surface disturbance will be from 5 to over 100 acres.

We anticipate that two new surface mines will be developed within the next ten years which total about 500 acres of total disturbance.

Mine production: Mining involves removing ore, processing, and production of a finished or semi-finished product and waste material. Mine production will occur when processing facilities are completed and either over-burden is removed from the deposit, or drifts are driven (or shafts sunk) to access an underground deposit. Earth moving equipment will be similar to that used during mine development. Mitigation measures associated with Federal, State and local permitting processes seek to minimize impact

to soil, air, water, wildlife, and botanic resources. Reclamation bonds are required for any BLM surface disturbance over 5 acres. In addition other state and local agencies require bonds, although the Bureau will not double bond a project. An operating mine may encompass as little as 5 acres or as many as 360 acres.

Reclamation: Reclamation may occur simultaneously with mining operations, or after the ore deposit is exhausted. Reclamation may include removal of equipment, structures, and hazardous materials, recontouring the surface, elimination of safety hazards, reclaiming roads, removal of pipe lines, power lines, and poles, and revegetation. However, often a deposit may still retain subeconomic quantities of mineralized rock. With further technological advances in mineral processing or mining techniques the deposit may again become economic. For this reason certain mine workings may not be completely reclaimed, so that the deposit can be revisited at a later date.

We anticipate that one surface mine will be reclaimed over the next ten years.

Gold Placer Mining: Small and large scale placer mining of gold deposits have been historically concentrated within the Keyesville Area. In the 1800s one particularly large gravel deposit was hydraulically mined. Owing to the lack of water in most drainages, except for but a few weeks a year placer mining is limited to small scale dredge operations within the Kern River or dry placer operations in other areas. At the one or two places where "large" auriferous gravel deposits do occur, more extensive placer operations could be developed, provided a source of water could be found. A "large" placer operation may process 100 cubic yards a day and impact 5 to 10 acres. Such an operation if diligently prosecuted would last only a year or two. Most suction dredging operations are considered casual use. The California Department of Fish and Game issues dredging permits and limits seasons of use to minimize impacts to fish and their habitat. Within the Keyesville Recreational Mining Area only suction dredges with diameter of 3 inches or less are allowed. Sluices, riffle boxes and dry washers must have collecting surfaces of less than 6 square feet, and high-banking is not allowed. Mechanized earth moving equipment, explosives, mercury or other hazardous chemicals may not be used.

No "large" scale placer mining operations are anticipated to be developed within the next ten years.

Nonmetallic Mineral Potential (locatable and saleable)

Bureau lands within the Caliente Resource Area, typically far from urban population centers, have not been the source of construction material. However with rapid expansion of urban areas and the phenomenal growth of population within the state, more and more Bureau lands will be called on to sustain our standard of life in light of an expanding population.

Sand and Gravel: Extraction of sand and gravel is concentrated in four areas: Lake Isabella, Bakersfield, the western San Joaquin Valley, and Tehachapi. In the Lake Isabella area there is increasing demand for sand and gravel, aggregate and fill material. Since BLM administers a considerable acreage in the area with potential for mineral materials, new development of these resources is expected. The Bureau operates a community pit for sand fill east of Lake Isabella, and active washes have potential for sand and gravel, or concrete aggregate. It is expected that one pit will be developed for aggregate which will be about 100 acres in extent. The existing BLM community pit should satisfy local demand for fill for ten years. It will eventually be about 40 acres in extent.

Near Bakersfield, the bed of the Kern River is presently a major source of sand and gravel from private land. Even though this source is essentially renewable, sand and gravel deposits of the Kern River Formation may be tapped as Bakersfield grows. This unit,

exposed primarily on the east side of the San Joaquin Valley, east and north of Bakersfield has low to moderate potential for development of sand and gravel. The Bureau does not manage much land here and the parcels tend to be far from the population center. One 40 acre pit may be developed within the next 10 to 15 years.

On the west side of the San Joaquin Valley the Tulare Formation has been the source of sand and gravel. On BLM land in the oil fields, soil and poorly consolidated sediment is used for fill mainly for tank berms. Usually material is removed close to the project to eliminate trucking. Surface disturbance is usually much less than an acre, usually less than few thousand square feet. The oil field operators are required to reclaim all disturbance. Formerly, the Bureau operated a 40 acre community pit for sand and gravel about 4 miles northeast of McKittrick, and the county operated a borrow pit about 100 acres in extent for fill about 5 miles east of Taft.

It is expected that each year for the next 10 to 15 years about 3 acres of surface will be temporarily impacted to provide local sources of fill material for oil field operations. It is likely that the county borrow pit will be reactivated. Also, one or two pits, one of which may be the old community pit northeast of McKittrick, will be opened. The McKittrick pit will be limited to 40 acres. A second pit may range from 20 to 100 acres in size.

In the Sand Canyon area east of Tehachapi sand and gravel deposits are mined by Caltrans to sand highways during winter weather. There is moderate potential in this area for sand and gravel for fill and also for winter road use. However in all cases mining will be hampered by close proximity to low density residential housing. Sand and gravel may be developed to provide a local source for residents, or for road sanding. There is a moderate possibly that a 10 to 40 acre pit will be developed here during the next 10 to 15 years. Although clay is known to occur, possibly in large quantities, it will likely not be developed.

Gypsum is presently mined from public lands in the Lost Hills area. Large portions of the resource area have potential for the production of gypsum. Due to the large amounts of surface disturbance this mining creates, and the generally low quality of the material, mining and reclamation requirements may render similar mining operations unfeasible in the future. For these reasons gypsum mining will probably be limited to one or two operations of no more than 60 acres in size.

Siliceous shale is wide-spread on public lands within the Caliente Resource Area. Two large mines currently extract this material from public lands. Although clay from as far away as Florida successfully competes in the California market, it is possible that the extensive California and west coast market has room for another producer. Therefore, within the next ten years another producer may be developed. The present mines and facilities have impacted about 1,000 acres. A new operation may be expected to impact 300 to 600 acres.

Limestone deposits on public lands south of Loraine, on the southeast side of the Tehachapi Mountains and perhaps those south of South Lake, have potential for development. Within the next 10 to 15 years another limestone mine may be developed. The deposit on reserved mineral estate on the southeast side of the Tehachapi Mountains probably has the highest potential, simply owing to the close proximity to an existing cement plant. Such an operation would impact 300 to 600 acres.

Solid Leasable Minerals

Phosphate: Over the past 20 years there have been about a dozen phosphate prospecting permits or leases within the Caliente Resource Area, most of which have been on lands administered by the U. S. Forest Service. All of these permits are either dormant or expired. In the Caliente Resource Area the Bureau of Land Management has classified several areas as prospectively valuable for phosphates. Most of these areas have only small tracts of Bureau managed lands within them; only Morales Canyon and the Temblor Range north

of McKittrick Summit do have large acreages of Bureau managed land.

The low grade of most of the deposits, environmental sensitivity of some of the occurrences, and large areas which would have to be disturbed in order to develop the deposits, have rendered all attempts at commercial development to date unsuccessful. Prices of phosphate would have to rise dramatically before any of these deposits could be economically viable; for that reason no new development is expected in the next 15 years. However, it is projected that early in the next century most of the United States' current sources will either be depleted, lower grade, or more difficult to extract. This would force the price of domestically produced phosphate up, probably renewing interest in California's phosphate deposits.

Saline minerals: Soda Lake, the only prospectively valuable area encompassing any public land, is estimated to contain several million tons of sodium sulfate. Sodium sulfate primarily is used in the manufacture of paper, detergents and glass. However its remote location, environmental sensitivity and small size would render the deposit uneconomic for decades to come. In California, Searles Lake yields tens of millions of dollars worth of sodium sulphate and other chemicals annually.

Rocks which host the Lockwood Valley borate deposits extend northeast to include a few parcels of Bureau managed land west of Grapevine. Proctor Dry Lake does not include any Bureau managed lands. There is virtually no potential for future production at this site.

Geothermal Resources

The only area within the southern Sierra Nevada known or inferred to be underlain by thermal water encompasses about 1,400 acres of Bureau managed mineral estate. The Bureau managed lands include the proposed Kernville Hot Springs ACEC and extend southwest along the Kern River in a swath about two miles wide, to include lands just northeast of the community of Lake Isabella and portions of the proposed Keyesville ACEC. This high potential area extends from Democrat Hot Springs, in the Kern River Canyon northeast to Kernville. Other areas of high potential within the Resource Area do not encompass Bureau managed lands. These areas are: the Paso Robles basin, Wheelers Hot Springs - northwest of Ojai, and Sespe Hot Springs.

These areas and the other scattered warm and hot springs within the resource area have potential for local use. Hot water can be circulated through a heat exchanger to provide low-cost space heating or hot water for use in heating individual structures or perhaps a hot house. It is unlikely that any of these sources will be developed for geothermal power production.

Geothermal Exploration: Exploration for geothermal resources is conducted by monitoring the temperature and chemistry of existing wells and springs, and drilling thermal gradient wells. Thermal gradient wells are drilled to determine the heat flow of the earth at a given location. It is estimated that 10 thermal gradient holes will be drilled on public land, from existing roads. Well pads measure no more than 20 by 20 feet.

Geothermal Development: The Lake Isabella-Kernville area has the highest potential for development of geothermal resources on public land. Hot water resources which are known in this area may be developed for private use. It is estimated that one geothermal well will be drilled on public land with less than 5 acres of disturbance. Ancillary facilities would include pipelines, and possibly a pump house and power lines. All operations will be bonded and operators will comply with applicable State and Federal laws.

Oil and Gas

The reasonable foreseeable development (RFD) scenario for oil and gas activity goes into considerable detail. It can be found in its entirety in Appendix G-2. However, in order to maintain continuity within the body of the RMP,

a summary of the more salient items is included in this chapter.

Oil and Gas Occurrence Potential. Occurrence potential is based upon demonstrated existence or indications of favorable geological features. It should be noted that the actual potential for economically recoverable reserves is much lower than the potential for occurrence. Nearly 6,000,000 acres (48% of all land) within the Caliente Resource Area is rated as having high potential for oil and gas. High potential areas are located within Neogene (post-Miocene) basins along the coast, and older basins with renewed Neogene activity inland. The basins where Monterey, Kreyenhagen, and other source rocks have gone through adequate temperature and pressure regimes, usually related to depth of burial, have allowed petroleum and natural gas generation. Major basins include the inland San Joaquin Basin, and coastal Cuyama, Santa Maria, and Ventura Basins. Moderate potential lands include 2,500,000 acres, or 21% of the area. Low/no potential areas (primarily basement rocks) encompass 4,000,000 acres, or 31% of the resource area.

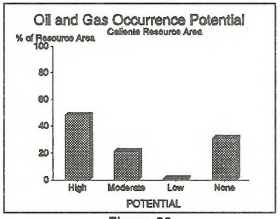


Figure 39

Oil Price and Economic Assumptions. The projection is based on a past decade which experienced a "boom and bust" cycle. The last half of the preceding decade witnessed stable to depressed demand and growth, future projections do not necessarily predict a "boom" period, in fact stable to somewhat sluggish growth trends are projected for oil and gas price, supply, and demand over the plan life.

Oil and Gas Exploration. There will be 20-35 Federal non-wildcat prospect wells drilled over the plan life. Another 2-8 Federal wildcat wells may be drilled annually. Most, if not all, of these wells will be drilled in the San Joaquin basin. Between 100-500 miles of seismic line is projected to be run on BLM land over the plan life. About 55% of this activity will be on existing roads, and will not cause additional surface disturbance; the remaining 45% will be cross-country, and will result in surface disturbance.

New Field Discoveries. Between 3-10 new fields will be discovered on public and private lands with estimated reserves ranging from 1-10 million barrels of oil equivalent (MMBOE). It is most likely that the fields will have reserves of 2-4 MMBOE. To derive these figures natural gas was counted at the rate of 6,000 cubic feet = 1 barrel of oil equivalent (BOE). New field discoveries will probably be within the San Joaquin Basin. A single new field is projected to be discovered on BLM land; additional BLM land may be encompassed by nearby new fields.

Oil and Gas Development. Most future Applications for Permits to Drill (APDs) will be located in areas of high potential, primarily within the San Joaquin Basin. Over the plan life, 950-1500 APDs are expected to be approved. Most development on BLM lands will be within the Midway Sunset field, where 700-1000 new Federal wells are expected. Other fields will see an additional 250-500 Federal wells. Large new cogeneration projects are not likely unless economic incentives or environmental constraints dictate their development.

Surface Disturbance. A range of 950-1500 wells will be drilled on BLM land over the plan life. Completed wells will require pipelines and gathering facilities (tank farms). As noted above, although most seismic exploration will be conducted on roads, 45-225 acres of surface disturbance are expected. Total surface disturbance for all BLM lands within Caliente Resource Area is 1475-4865 acres. Between 284-772 acres are expected to be reclaimed from Drilled and Abandoned and

Plugged and Abandoned wells and associated production facilities. Net surface disturbance is therefore expected to be 1200-4100 acres. Of these, 90% or 1000-3100 acres will be reclaimed within one year of termination of the individual projects. There will be a permanent (10 - 15 year) additional surface disturbance of 100-300 acres. Total net disturbance is at most expected to be about 1% of BLM lands in the Valley.

Recreation

The Caliente Resource Area is located in south-central California. The population of this region is expanding at a phenomenal rate. The 1990 United States Census Bureau statistics rate Bakersfield and Fresno, out of all the cities in the U.S. of more than 100,000 people, as amongst the top twelve in terms of the largest percentage increases in population since 1980. Bakersfield grew at a 65.5% rate, while Fresno rated a 62.9% increase. Out of these top twelve cities, not including Bakersfield or Fresno, five others are located in and around Los Angeles, an area that is home to many visitors of Caliente's public lands. These local population trends will place great demands upon Caliente's public lands, especially for day-use opportunities of both developed facilities and undeveloped open space areas. With greater use will also come increased conflict between competing visitors as well as resource damage from excessive use.

Leisure time availability is expected to change as more of the workforce utilizes opportunities for alternative work schedules. This will result in increased recreational use of the public lands during the mid-week period. The attraction of BLM lands to the increasing population of the leisure-oriented senior citizen, many of whom travel fully-equipped in recreational vehicles, will also contribute to this increased recreational use.

A larger number of visitors utilizing relatively smaller areas near cities and towns is likely, and resource damage resulting from concentrated use should be expected. As a result, there will be a need for developed recreational facilities in places that are presently popular as undeveloped open space. Concurrently, there will be a need for an increase in visitor services programs, education and law enforcement. Polls show that seventy-nine percent of Californians agreed that recreation programs for special populations such as the elderly, poor or disabled should be increased and two-thirds agreed that more parks and recreation opportunities are needed in or near large cities (California, 1987). As residential development expands outward from the growing cities and towns in the Caliente Resource Area's communities, many of the existing open space parcels of public lands will be bordered or surrounded by residential, industrial or agricultural development. Conflicts will increase between local residents and recreationists who have traditionally used public lands for off-road vehicle use, shooting, hunting, camping, picnicking, and rock-hounding. Seventy-five percent of Californians agreed that recreation areas are already too crowded, and eighty percent agreed that litter is a significant problem (California, 1987).

In sum, changes regarding future visitors to outdoor recreation areas will include the following: more diversification among visitors and a corresponding broader spectrum of demands for outdoor recreation opportunities; greater cultural pluralism that will require an enhanced level of sophistication and sensitivity on the part of management; and growth in the demand for amenities (e.g. electricity and modern comfort stations) at outdoor recreation sites (Ewert, 1990).

The state of California found that the highest latent demands (unmet outdoor recreation demands where Californians would support public funding for facilities for activities) to be for camping in developed sites, visiting natural areas and general nature study, walking and bicycling in undeveloped parks and open areas, and freshwater fishing. In the same study, public support for government spending was strongest for campgrounds with tent or vehicle sites, walking, picnicking in developed

sites and camping in primitive areas and backpacking (California, 1987).

The major landholders in south-central California, not including the BLM Bakersfield District, are Sequoia and Los Padres National Forests (USFS), Sequoia National Park (NPS), California State Parks, BLM Desert District, and U.S. Army Corps of Engineers. These agencies manage recreational areas that attract visitors from all over the United States as well as from foreign countries. Caliente's lands incur some spill-over use from these attractions, but serve as primary destination goals for many visitors. Caliente's lands are generally at a lower altitude than those in the USFS and NPS and in many cases, closer to larger population centers. Therefore, visitors are utilizing BLM lands during the seasons when the higher elevations are too cold, snow-covered, or inaccessible.

At present the principal recreational uses in Caliente's management areas are as follows:

Coast Management Area - (35,000 visitor hours per year). This area receives overflow visitation from California State Parks and USFS's Los Padres National Forest. Hiking is popular on BLM's Pt. Sal coastal parcel. Moderate dispersed hunting, camping, hiking, horse-riding, mountain bicycling, target shooting and nature walking, and limited fishing, trapping, OHV use, swimming, and picnicking also occur within the Coast Management Area. With the exception of the Rinconada developed trailhead on BLM land that serves Los Padres National Forest land, there are no developed facilities on BLM land in this management area. The three counties which make up the bulk of the Coast Management Area are San Luis Obispo, Santa Barbara and Ventura. Within these counties the year 2000 demand for the following recreation activities is expected to increase by the indicated averaged percentages: hunting (10%), target shooting (11%), picnicking (10.6%), hiking/backpacking (13.6%), nature appreciation activities (15.3%), visiting scenic areas (16.6%), horseback riding (14%), OHV use (16%), and camping (10.6%). (Department of Parks and Recreation, CA). Averaging these percentages would increase visitor hours from 35,000 to 39,830 per year, or an approximate 14% increase in usage from the population just within these three counties. In actuality, because many people travel to the coastal region from inland points for recreation, visitor use is expected to increase even higher.

Valley Management Area - (110,000 visitor hours per year). The principal recreation uses of this area are hunting and target shooting, nature and cultural studies (including birdwatching, wildlife observation, wildflower viewing and "spiritual enlightenment"), day hiking, horse-riding, bicycling, OHV use, general sightseeing, and camping. Developed facilities are at present limited to three miles of recreational trail, designated visitor use parking and camping areas, and temporary portable toilet contracts.

The Carrizo Plains Natural Area is the most pressing recreational opportunity for BLM in this management area. It will continue to accommodate gradual growth in visitation with the increase in publicity, planned developments (visitor center, brochures, guided tours, etc.) and increase in projected population growth of California's central coastal area. Nearly 50% of Californians already participate in birdwatching, general nature study and visitation of natural areas (California, 1987). Presently, entries into the visitor roster at Painted Rock show an average of 3000 visitors per year with visitation concentrated in the spring and winter seasons. Limits on certain types of activities may be required to preserve the delicate resources of this area. This may be accomplished by limiting the capacity of developed facilities, imposing user fees, or restricting user activity to guided tours.

The two counties which make up the bulk of the Valley Management Area are Kern and Kings Counties. Within these counties the year 2000 demand for the following recreation activities is expected to increase by the indicated averaged percentages: hunting (11%), target shooting (12%), picnicking (11%), hiking/backpacking (15%), nature

appreciation activities (18%), visiting scenic areas (20%), horseback riding (14%), OHV use (15%), and camping (11%) (Department of Parks and Recreation, CA). Averaging these percentages would increase visitor hours per year from 110,000 to 155,222 or an approximate 14% increase in usage from the population within only Kern and Kings counties.

South Sierra Management Area - (estimates of visitor use range from 9300 visitors per year in the Chimney Creek Special Recreation Management Area (SRMA) to 60,000 visitor days per year in the Isabella area). The South Sierra Management Area's diverse topography, proximity to Sequoia National Forest and Sequoia National Park, Lake Isabella USFS recreational complex, BLM's Desert District, 120 miles of BLM-managed Pacific Crest National Scenic Trail, the white-water river program on the Lower Kern, the heavily-used Keyesville SRMA and 113,618 acres of WSAs all contribute to substantial recreation pressure in this area. Activities include hunting, fishing, dispersed camping, backpacking and day hiking, horse-riding, river rafting, river play, picnicking, gold panning, bicycling, OHV use, sightseeing, rockhounding, shooting, fuelwood gathering, Christmas tree cutting, and snow play. Developed facilities in addition to the Pacific Crest National Scenic Trail include three campgrounds, and provision of toilet and trash contracts for the river rafting program on the Kern and to service heavy visitor-use on the North Fork of the Kaweah River. Tulare County comprises the bulk of the South Sierra Management Area. By the year 2000 demand in Tulare County for the following recreation activities is expected to increase by the indicated averaged percentages: hunting (14%), target shooting (15%), picnicking (12%), hiking/backpacking (15%), nature appreciation activities (21%), visiting scenic areas (23%), horseback riding (17%), OHV use (19%), and camping (12%) (Department of Parks and Recreation, CA). Averaging these percentages would increase visitor hours per year just from the Tulare county population by 16.4%.

The Pacific Crest National Scenic Trail was completed within the Caliente Resource Area in 1990. People can now hike or horse-ride from Mexico to Canada (with a slight deviation near Tejon Ranch which may be negotiated shortly). Use is expected to rise considerably on this trail as the completion of the route becomes better known. In 1991 approximately 1000 hikers and horse-riders were known to use the BLM portion of the PCNST per year. Demands on the PCNST should now increase 20% or more. The development of trailhead facilities and potable water sources and the elimination of illegal OHV use on the trail will now become a high priority.

The Keyesville SRMA is particularly vulnerable to population increases due to its location adjacent to resort towns and the popular Lake Isabella recreation area. Developments recommended in this document are considered essential to avoid resource damage rising out from "changes of the 90's", namely:

> "Natural environment degradation will encourage a continuation of depreciative behaviors further reducing the quality of the outdoor recreation experience. Outdoor recreation activities will be more heavily influenced by technological developments such as ... high tech equipment" (Ewert, 1990).

(In the case of Keyesville, "high tech equipment" includes off-road motorcycles and mountain bicycles.)

Caliente Resource Area has several large rivers such as the Lower Kern and the North Fork of the Kaweah, which, in this semi-arid region, are major attractions for rafting, fishing, swimming, picnicking and camping. These rivers are experiencing both water and land-based pollution. This problem is accentuated by the linear nature of the river whose shores run through a checkerboard pattern of land ownership. These rivers may need additional

protection and further development in the form of sanitation facilities.

Although great strides have been made amongst user groups in understanding and tolerating each other's recreational pursuits, the fact remains that recreational activities can be incompatible and mutually exclusive. Off-highway vehicle use and shooting have impacted resources on public lands to the extent that non-consumptive recreationists to stay away from some areas not only because of the resulting lack of naturalness, but also as a safety consideration. Due to BLM's limited financial and personnel resources in relationship to the large acreage it manages, the future recreational emphasis received on scattered parcels of public land is largely dependent upon the makeup of the surrounding communities, including such factors as financial wealth, average age and education, attitudes about the environment and quality of life, concerns about social responsibility, etc. If a public land parcel is highly valued for its natural open space by a majority of the surrounding community, it is possible that a cooperative management relationship can be developed whereby concerned citizens obligate their personal wealth, time and energy to preserving and protecting the parcel's amenity values under the general direction of the BLM. At the opposite extreme, if a parcel of open space is best seen in the eyes of the surrounding residents as optimum for more developed or high-tech types of recreational use, this parcel could be managed cooperatively for these uses, assuming that all government ordinances, rules, regulations and laws are respected.

In addition to cooperative agreements, Caliente Resource Area oversees a large volunteer program that is expected to gain further momentum in the future. Eighty-five percent of Californians support using volunteers in recreational areas and nearly sixty-five percent indicated that they would consider volunteering (California, 1987). These recreation-oriented volunteers, in addition to assisting on valuable research projects, are devoting their energies to protecting natural resources and/or developing recreational facilities such as hiking, bicycling and OHV trails, that satisfy their demands.

The Caliente Resource Area will be concentrating its recreation management efforts on high resource value lands of regional and/or national significance, as directed and funded through Congress. These will include the Pacific Crest National Scenic Trail, the Carrizo Plains Natural Area, all potential wilderness, wild and scenic rivers and ACEC designations, Backcountry Byways, and special recreation management areas. Should funding and staffing increase, the remaining lands will receive the benefits of improved recreation management.

Impact Topics Selected for Analysis

Ten major resources/topics were identified as needing an in depth analysis. Other important topics that were not reviewed in detail are described in Chapter 1, along with the reasons they were not closely scrutinized. The analysis addresses environmental consequences for the entire planning area; findings that are unique to one particular management area are highlighted. The discussion for each resource includes direct, indirect, and cumulative impacts.

The environmental analysis addresses the following impact topics:

Air Quality
Land Tenure Adjustment
Land Use Authorizations
Livestock Grazing
Minerals
Oil and Gas Development
Recreation
Vegetation
Water Resources
Wildlife

This section generally deals with impacts from actions on lands managed by the BLM. However, this document analyzes the impacts to oil and gas leasing and development on all Federal mineral estate outside of National Park

Service (NPS) and USFS boundaries. All NPS lands within the resource area are closed to leasing, while the specific and cumulative impacts that would occur from potential leasing and development on USFS lands are analyzed in USFS Land and Resource Management Plans and EISs. Impacts from oil and gas leasing on lands administered by other agencies may be analyzed by that agency, or by the BLM. In all cases, actions will comply with the National Environmental Policy Act. The following discussions address the impacts related to the leasing and development of Federal mineral estate underlying BLM, other Federal lands not described above, and private lands (split estate).

Environmental Consequences

Alternative 1 - No Action (Continuation of Present Management)

Air Resources

The No Action Alternative would result in impacts to air quality from such activities as land disposal/retention, oil and gas operations, and OHV use. Other categories of activity have minimal impacts to air resources in the Resource Area.

The continuation of present management would result in the disposal of lands through sale or exchange that would result in fewer miles of managed roads. Disposal of lands that have roads in the San Joaquin Valley Air Basin (SJVAB) may not reduce overall fugitive dust emissions (PM_{10}, small particulate matter less than 10 microns), but would merely transfer abatement responsibility, resulting in a reduction of PM_{10} emissions from Bureau managed lands. Should development occur once land has moved into the private sector, increases in PM_{10} generation are possible. On the basis of the amount of land available for disposal, a slight to moderate impact to air quality is possible.

Designating routes of travel can serve to reduce PM_{10} emission levels in the SJVAB, by reducing travel on some roads, thus removing those roads from the category of emission sources. Present management calls for some selection of designated routes of travel (DROTs), in accordance with the criteria in Appendix H-1. The concentration of vehicular travel on specific roads increases our ability to control fugitive dust by bringing those roads into a control category, i.e. changing road classification as an emission source based on number of vehicles per 24 hour period trafficking these segments.

Retaining lands with roads which fit the criteria as emission sources in the SJVAB will require implementing of Reasonable Available Control Measures (RACM) and result in reduction of fugitive dust emissions to regulated levels. This rule also applies to acquired lands where reduction in PM_{10} emissions could be accomplished by the application of RACM on roads in the category of PM_{10} emission sources. The retention, disposal or acquisition of lands will have no significant impact in terms of fugitive dust requirements in the South Central Coast Air Basin (SCCAB). Air Quality Management Plans in the SCCAB plan for attainment of the PM_{10} criteria pollutant standard by the control of other PM_{10} sources, since fugitive dust is not a major contribution source of PM_{10}. The primary sources of PM_{10} are attributed to wood-burning stoves and open burning.

Solid mineral activity is not expected to have a significant effect on air quality. Authorized mining activities with the greatest potential for impacts to PM_{10} include the categories of gypsum and cat litter production, where fugitive dust is generated by Excel Mineral Inc., Southern Clay, and Holloway Gypsum Co. These operations will be required to implement RACM, which will result in reduced emission levels of PM_{10} and no significant impact. Potentially, a significant increase in PM_{10} emissions is possible with some 38,000 acres open for mineral materials extraction.

Fluid mineral activity under present management results in the release of reactive organic compounds (ROCs), and nitrogen oxides (NOX). Increases in fine particulate matter (PM_{10}) can result from dust generated by seismic exploration activities, travel on unpaved surfaces in conjunction with oil exploration or development activities, and indirectly from the emission of gases, such as ROCs and NOX, which combine in the atmosphere to form PM_{10}. Except for areas leased and/or developed with a No Surface Occupancy constraint or lands that are closed to leasing, analysis is described for the resource area's high intensity regions. Emission studies contracted by the California Air Resources Board (CARB) indicate that prior to the 1985 oil and gas industry downturn, a producing diesel generated oil well in the SJVAB resulted in annual emissions of about 1300 lbs of NOX, 1895 lbs of ROCs and 210 lbs of PM_{10}. Approximately 610 lbs of NOX, 24 lb of ROCs, and 48 lbs of PM_{10} are generated due to drilling a new well (Dennison et al, 1983). Nearly 61% of total ROC emissions from stationary sources are related to oil and gas operations (pumping wells, refineries, etc). Less than 1% of all stationary source NOX and carbon monoxide emissions are attributed to oil and gas operations. Federal Lands produce 2.3% of total ROC (both mobil and stationary sources), 1% of the NOX, and 3% of carbon monoxide. Total ozone precursors from federal lands in the Valley equal 1.8% (SJVUAPCD 1992 Air Quality Attainment Plan).

Oil and gas operations in the Caliente Resource Area managed portions of the SJVAB account for approximately 13% of the total oil and gas industry contribution for these emissions and thus cause, a significant impact to basin-wide air quality. However, the percent contribution from oil and gas operations in the Resource Area managed portions of the SJVAB would not change measurably, since drilling from Bureau regulated wells would probably proceed at a rate comparable to the drilling that would occur overall. New Source Rules also preclude the allowance of additional pollutants from new fluid mineral activity.

The 1987 baseline inventory for the San Joaquin Valley Air Basin shows the oil and gas industry to be responsible for the following percentages of criteria pollutants: 48% of ROCs, 30% of NOX, 34% of SOX, 1.6% of CO, and less than 1% of PM_{10}. The industry contribution to ozone, which is a secondary pollutant (a product of ROC and NOX in the presence of sunlight), is estimated to be between 30 and 50% of the total. Levels of oil and gas produced pollutants in Kern County (where a large part of the industry is situated) are much higher: 75.2% of all ROCs, and 51.7% of all NOX. Thus, total pollutant production is substantial and would continue to be a significant impact.

OHV recreation is dispersed, with no OHV recreation areas defined. Certain lands have restricted OHV use. This dispersed activity results in an unquantified release of fugitive dust into the SJVAB. The draft air attainment plan for the SJVAB regulates PM_{10} emission levels due to OHV activity and requires the Bureau to show reductions through the application of RACM in areas where vehicles (trucks, cars, cycles, bikes, or other OHV vehicles) are driving over unpaved unsealed areas of 1 acre or more in size. Areas showing a concentration of OHV activity, fitting the above criteria, will need to be closed and/or cordoned off, since no dedicated OHV open areas are allowed. This would probably result in the further dispersement of OHV use and probably no reduction in fugitive dust emissions. Regularly staged OHV events in the SJVAB such as off road bike, motorcycle, jeep or other OHV races will require air pollution control district (APCD) approved plans which demonstrate how fugitive dust emissions will be controlled and regulated at approved levels. The result would be reduced PM_{10} emission levels as compared to non-regulated events of past years. Overall, air quality impacts due to OHV activity are rated nominally significant.

Minimal timber harvesting occurs on Caliente Resource Area lands. No commercial cutting and very few cordwood and salvage sales are authorized. But air quality effects from present forest management can result in the generation of the various criteria pollutants. Measurable emissions are associated with trucks, chain saws, log splitters or other gas powered equipment used for harvesting cordwood or salvage sale timber. However, the incremental contribution by forest management practices on Bureau lands is minimal when all other cordwood harvesting sources are considered. The incidental amount of Christmas trees harvested is likewise of no significant impact to air quality. The indirect effects are of greater concern, i.e. the burning of fuelwood, resulting in smoke emissions. Increasingly stringent Federal, State and Local Air Pollution regulations on fuelwood harvesting equipment and wood burning, may result in abatement of related emissions.

The Bureau will continue its obligation of ensuring that equipment used in forest practice operations meet the requirements of these various regulations. Where forest practice operations are contracted out, applicants are to be informed of the regulations and types of equipment authorized in order to reduce of emission violations.

Applications of pesticides and herbicides affecting air quality are regulated by Federal, State and local regulations. Hazardous impacts include drift of herbicides, pesticides, rodenticides etc., and or spills of these chemicals which can result in release of air toxics at unacceptable levels. Use of these chemicals, by Bureau personnel or contractors, will continue to be in accordance with the appropriate regulations and by certified applicators to safeguard against accidental releases. The overall impact to air quality is therefore projected to be minimal.

The Sacatar Wilderness Study Area (WSA) and the Rock House WSA are in the same Clean Air Act air quality category, Class II, as the majority of lands in the resource area. The Sequoia National Park, which is categorized Class I, is the one exception. If the Bureau managed WSAs are designated as Wilderness and become Class I areas, indirect positive effects on the general overall air quality in the SJVAB are possible. This is due to the special protection granted these areas under the Clean Air Act. Dependent upon the designated Class, Prevention of Significant Deterioration Rules may apply. These rules restrict new upwind sources or modified existing sources of pollution which could affect these lands. Specifically, Best Available Control Measures are required to ensure that sources will not exceed the air quality increments shown in Table 3, thus benefitting not only the wilderness area but the entire air basin and possibly down wind basins, as well.

Under present management, impacts to air resources due to Hazardous Materials are

subject to random events. Present staffing and responsiveness is expected to continue to reduce threat of accidental release of air toxics and minimal impacts are expected.

Emission levels due to both wildfire and prescribed fire are unpredictable, with prescribed fire limited when wildfires are widespread. On the basis of the 1987 CARB baseline inventory, all fires, including agricultural burning, accounted for 6 percent of PM_{10} emissions in the SJVAB. Range and forest fires make up one fifth of that total, or less than one percent. Impacts from these sources are therefore not significant. The California Department of Forestry and Fire Prevention assesses acreages of incident wildfires occurring in any one year to determine whether or not prescribed fires can be conducted. This is expected to be supplemented by increased regulation by the various air authorities; compliance by the Bureau will result in reduced emissions from prescribed fires.

Conclusion. The amount of fugitive dust (PM_{10}) contributed from public lands is negligible, estimated at < 1%. The total amount of fugitive dust attributable to all paved roads, unpaved roads and OHV activity is approximately 31% of all PM_{10} emissions in the SJVAB (SJVAB PM_{10} Plan, 1991). Based on the premise that the lands managed by the Caliente Resource Area comprise less than 5% of all lands located in the SJVAB and the proportion of roads fitting the criteria emission sources respectively less, contributions of all pollutants from public lands are minimal.

Cumulative Impacts

General. The continuation of present management has a measurable cumulative impact to SJVAB and SCCAB air basin quality. Excluding wildfire, which is highly unpredictable, pollutants emanating from Bureau lands/operations are expected to decline moderately while comparatively continuing to contribute about the same percent air basin wide, i.e. 13% of the total from oil and gas operations and 15% of the total contribution from mining.

Global Warming. The greatest potential for contributions to the problem of global warming under this alternative is development associated with oil and gas. Other factors, including livestock grazing, are expected to have negligible effects. Global warming as an issue was the primary topic of the World Petroleum Congress of 1991, which for the first time considered the effects that environmental issues have on the development and exploration for oil and gas, as reported in the November 4, 1991 issue of the Oil and Gas Journal. The report indicated that even though changes to alternative fuels may result in a fairly static demand for oil and gas in developed countries, less developed countries will have an increased demand for oil and gas. World population will increase from a current 5.5 billion to more than 8 billion by 2025, and ninety five percent (95%) of these people will be born in less developed countries. There will be an increase in world demand by 8 to 9 million barrels of oil per day in 10 years, almost 30% greater than now (1992). Nearly 60% of total energy demand will be met from oil and gas supplies.

Global warming will be more affected by impacts dictated by developing countries technological advancement, land use policies, and energy programs than those of developed countries. For example, taxes have been proposed (1992) by the European Common Market on the amount of CO_2 emissions by industry in those countries. This will lead to an increased demand for relatively non-polluting natural gas to supplant highly polluting coal and oil burning in developed countries, including the United States. In the same issue of the Oil and Gas Journal it was estimated that if all countries used the current technology of up-to-date highly efficient power plants and steel making plants, CO_2 emissions could drop 32%.

Contributions of activities to global warming will decline by the same amount as other emissions, about 28% by the year 2000. The relative extent of contribution is expected to decline further in relation to the overall global contribution, and also in response to future

limitations imposed by other State, Federal, or local agencies.

Additional efforts to control global warming are likely to occur as a result of limitations imposed by other State, Federal, or local agencies. It is estimated that changes within the scope of this plan that affect oil and gas production have little potential to have measurable effects on global warming.

Land Tenure Adjustment

The primary impact to Land Tenure Adjustment is the set of constraints on land disposal that would be imposed when Federally listed species, cultural resources or other sensitive resources are found on public lands proposed for disposal. By limiting the ability to dispose of unmanageable parcels or to block up public land elsewhere, the ability of the Bureau to address the needs of community expansion, the economy, and recreation areas is somewhat constrained.

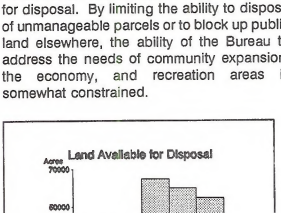


Figure 40

Under this alternative 40,000 acres of public land are available for disposal. It is expected that of these 40,000 acres, approximately 10,000 acres (25%) will be retained in Federal ownership due to environmental considerations. All public lands included in nine ACECs (18,994 acres), critical condor habitat (4,000 acres), two wilderness areas (840 acres) and wilderness study areas recommended suitable for wilderness designation (27,120 acres) will be retained in Federal ownership under this alternative. These are areas in which the high resource and open space values will be maintained and possibly be enhanced if private lands within the ACECs and wilderness areas are acquired. Additional listings of plants and wildlife as threatened or endangered may constrain efforts to block up public land if those species occur on lands being considered for disposal. If parcels are not disposed, they would remain as scattered, unmanageable parcels of public land. If these scattered parcels occur near urban areas, retention might limit urban development.

It is expected that approximately between 5,000 to 10,000 acres of land will be acquired in the areas of Chimney Peak/Kennedy Meadows, South Fork Kern River, Case Mountain, and Blue Ridge, and 80,000 acres in the Carrizo Plain Natural Area. These areas are generally rural, uninhabited, adjacent to large blocks of public land, and contain high resources values. The acquisition of land in the identified areas would improve management by blocking up the public lands. This would decrease the need for fencing and increase the public awareness for protection of the high resource values. Under this alternative, it is expected that the 40,000 acres of public land available for disposal would provide enough lands to acquire less than half of the area identified for possible acquisition.

It is expected that the private land tax base in San Luis Obispo, Kern and Tulare Counties will decrease slightly as a result of land tenure adjustments. Slight increases are expected in Santa Barbara, Ventura and Kings Counties. At the present funding rates, it is expected to take about 20 years to accomplish the land tenure adjustment actions.

Impacts from mineral exploration and development and livestock grazing consist of delays to the sale or exchange process, and constraints upon disposal. Approximately 600,000 acres of mineral estate are available for oil and gas and geothermal leasing. The Bureau can make a patent subject to the oil

and gas lease or reserve the oil and gas rights. However, this can create more red tape and paperwork in the process as well as contribute to establishment of split estate lands. It may also cause a reduction of property values. Livestock grazing is authorized on approximately 413,000 acres (67%) of public land. Affected grazing operators are notified of any potential disposal two years in advance of the consummation of the sale or exchange. In some cases, the new private land owner is the grazing lessee, or is agreeable to continuation of the grazing activity. In most cases, the grazing authorization is terminated by the Bureau after the two-year notification period. The constraint of the grazing authorization creates more paperwork and delays in the process. Further delays can occur if the Bureau's actions are protested by the grazing operator. Grazing generally does not negatively affect the value of lands; the presence of range improvements may increase values slightly. Overall impacts under this alternative are expected to be minor.

Privatization of public lands would not significantly increase development since parcels identified for disposal are almost entirely in a rural setting, well removed from urban centers. Uses are expected to remain non-intensive on the vast majority of public land transferred to the private sector via exchange or sale. It is estimated that over a 15-year period, 10% of the lands transferred to the private sector (4,000 acres) would be developed with roads, buildings, etc.

Conclusion. The consideration of approximately 40,000 acres of public land for disposal through exchange or sale may increase opportunities for community development and expansion. Additional listing of plants and wildlife as threatened or endangered may constrain disposal/exchange efforts when those species occur on lands identified for disposal. The small number of lands available for disposal may also constrain future acquisitions by limiting opportunities for exchange. Those lands acquired through exchange would contain high resource values. The Bureau's ability to manage these lands would be increased due to their consolidation into larger blocks. Privatization of the public land may increase opportunities to meet some rural residential growth needs, while impacts to open space are expected to be slight. At the present funding rates, it is expected to take about 20 years to accomplish the land tenure adjustment actions. Land tenure adjustment would not be seriously constrained by other actions included within this alternative.

Cumulative Impacts

It is expected that population increases and subsequent development to meet increased population needs would generally occur on private lands near cities. Most of the rural lands that the BLM would be interested in acquiring are largely unaffected by this growth. This same growth may increase interest in some public lands available for disposal, facilitating exchanges. The land tenure adjustments proposed would not significantly affect the open space and rural settings, nor significantly change the net acreage of public and private lands.

Indirect impacts to the Land Tenure Adjustment program would result from development and use of the public lands. Recent population trends indicate increases in south central California at a rapid rate. Development of rural residences and other impacts associated with urban growth in the Lake Isabella, Three Rivers, and Kennedy Meadows areas continue to increase the demand for use and development of the public lands. Dispersed recreation and unauthorized uses resulting from urban growth and rural residential development would reduce land values and constrain disposal where these uses interface with the scattered, rural public lands.

Due to the isolated nature and size of the public lands identified for disposal, the proposed land tenure adjustments are not expected to significantly affect lands suitable for agricultural development nor the agricultural industry of the region.

Land Use Authorizations

The primary impacts to Land Use Authorizations are those associated with oil and gas development. Affected authorizations include rights-of-way for access roads, oil, gas, water, or steam pipelines, and utility lines for the production of oil and gas. Any substantial change in the number or complexity of authorizations affects the Bureau's ability to process land use applications in an orderly and timely manner while protecting natural resources and preventing undue environmental damage. The need for rights-of-way associated with oil and gas production is expected to continue at the current rate of 30 applications per year and possibly increase if the nation's energy needs increase. This rate is not expected to be measurably impacted under this alternative.

The net effect of this alternative on land use authorizations should be negligible except in areas with Federally listed species. Some impacts may occur due to environmental considerations for protection of Federally listed species in the Valley Management Area. These impacts would primarily affect rights-of-way associated with oil and gas development. These could include limitations on the location, available routes, and constraints on construction methods, as well as possible delays in processing applications due to requirements to consult with the U.S. Fish and Wildlife Service. These delays, as well as the need to relocate or reroute facilities, would increase the applicant's costs. These impacts may increase if additional plants and wildlife become listed as threatened or endangered and may cause a decline in the number of authorizations requested.

The need for rights-of-way associated with development on private lands is expected to continue at the rate of four applications per year and possibly increase as the needs of the public associated with the development of their private land affect adjacent public lands. This rate is not expected to be measurably impacted under this alternative.

Land Use Authorizations would be constrained on those public lands within ACECs (18,994 acres). New authorizations would not be allowed on public lands within wilderness areas (840 acres) and wilderness study areas (82,997 acres with 54,841 recommended unsuitable). Re-routing and increased development on private lands may occur due to constraints on development within these environmentally sensitive areas. This may increase costs to the applicants. Where authorizations are granted within ACECs, the applicant's costs may increase due to requirements for mitigation or compensation for damage to resources caused by the development. Additional listings of plants and wildlife may also cause a decline in the number of authorizations requested. Although a long-term impact, this is not considered significant due to the historically low activity on public lands in these environmentally sensitive areas.

Conclusion. The need for land use authorizations is expected to continue at the current level and may increase as the nation's energy needs increase or community expansion and rural residential development increases with the growth in population. When these actions occur within Federally listed species habitat, there may be delays or additional costs borne by the applicant to mitigate or compensate for disturbance or habitat loss. Applicant's costs may increase due to the need to mitigate or reroute to avoid impacts to listed species and other resource values within ACECs. Costs may increase if additional species become listed as threatened or endangered. The number of requests for authorizations may decrease in areas where ACECs, wilderness areas, and wilderness study areas have been identified. Land Use Authorizations may be constrained on 102,831 acres of public land under this alternative.

Cumulative Impacts

Land use authorizations issued as a result of urban growth needs would slightly reduce the open space and high resource values in the rural areas and may encourage the

development of adjacent private lands. Due to the scattered nature of the public lands, it is expected that use of private lands in the oil and gas production areas would occur regardless of the availability of the public lands. Although opportunities for development of wind energy, communication sites, access roads, and utility corridors may be constrained on public land in areas with high resource values, opportunities for these developments to occur on private lands are largely unaffected. Overall, public lands encompass a small part of the total land pattern in the resource area. The contribution of this plan to the cumulative impacts on land uses should be negligible.

Livestock Grazing Management

The elimination of grazing within the known populations of California jewelflower, Kern mallow, San Joaquin woolly threads, Bakersfield cactus, and the threatened and endangered species conservation areas for Kern mallow, would occur for the purpose of protecting these species from any grazing related impacts and providing recovery for these Federally listed species. This action would result in the suspension of grazing use on one entire allotment encompassing 2,278 acres and 380 animal unit months (AUMs), and the partial suspension of grazing use on 1,154 acres involving 276 AUMs on six other allotments. The proposed seasonal use restrictions, which would allow listed plant species to establish seedlings and complete seed maturation, include: no grazing during 2/15 - 5/30 for known populations of Hoover's woolly star; no grazing during 2/15 - 4/30 in threatened and endangered species conservation areas for California jewelflower; and no grazing during 2/1 - 4/30 in threatened and endangered species conservation areas for San Joaquin wooly threads. In addition, seasonal restrictions for listed animal species areas are also proposed. These restrictions would protect giant kangaroo rat haystacking activities by prohibiting grazing during 4/1 - 6/15, and ensure proper habitat structure for listed animal species by prohibiting grazing in saltbush areas during 6/1 - 11/30. There would also be an overall requirement for active "green up" or 700 lbs/ac. of mulch before turnout. These restrictions are shown collectively in Figure 41 and are described in further detail in Appendix D-2.

The implementation of these restrictions would reduce available grazing use on the remaining 109 allotments by 16%, from an average use season of eight months to an average of 6.7 months. The restrictions on these particular use periods are impacting to grazing operations, since these are also the periods of highest forage nutrient value. The requirement of maintaining a minimum of 500 lbs/ac. of mulch within all listed plant and animal habitats (except California condor) could result in decreased use in years with below normal rainfall. A projected two years of no grazing on public land within each allotment would occur out of every ten years due to forage production not meeting the 500 lb. minimum. This mulch requirement will also result in less forage available for livestock grazing on poor forage years than would have been available in the past. Managing annual residual mulch at a minimum of 500 lbs/ac. on allotments within Federally listed species habitat (except California condor) would benefit grazing management in the long term by providing for a sustainable forage resource. The enhanced seedbed microenvironment would allow for ecological site condition to remain or improve to good condition. This benefit is obtained by maintaining a minimum residual mulch level which increases infiltration, binds the soil particles and retards erosion (Hopkins, 1954; Singer et. al., 1980). Bently and Talbot, (1951) summarize: "Close grazing is clearly inefficient from the standpoint of forage production... Most important in the long run, close grazing did not maintain sufficient litter on the soil surface to promote full forage production year after year, and it produced other indications of soil deterioration".

The "green up" requirement and increased mulch level without "green up" requirement for livestock turn out could also result in several years of delayed livestock turn out, thus reducing the reliability of allowing livestock turn out at the normal season. This would have the most impact to those allotments

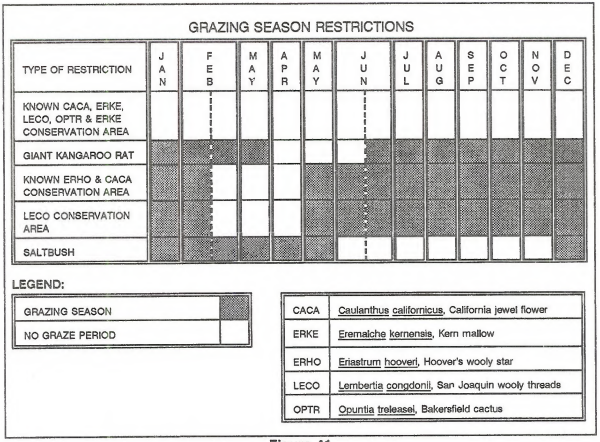


Figure 41

already facing seasonal restrictions at other times of the year. The 50% utilization of current annual year's growth on perennial forage plants was used as the desired management level on fifty allotments under previous land use plans. This utilization level, however, will now be applied to 25 more allotments under this alternative than in the past plans, due to the guidelines for management proposed for the potential habitat of Federally listed species. Implementation at this magnitude would benefit grazing management in the long term by providing a productive, nutritious and sustainable forage resource. Stoddart and Smith (1955) state: "Remarkable production was obtained from heavily clipped shrubs. On winter ranges, bitterbrush production was maintained under use of 50 -60%, curlleaf mountain mahogany under use of 50 - 60% and ceanothus under 35 - 40%". Utilization levels in excess of those proposed would result in insufficient foliage to replenish root reserves and an inevitable decline in perennial plant vigor.

Range improvement construction could be restricted due to the presence of listed plants or animals. The use of forage on private lands could be indirectly limited due to restrictions to grazing use on public lands, if the private land and intermingled with the public land.

The proposed riparian management objectives would cause impacts to grazing management on nine allotments within the South Sierra Management Area by restricting use seasons, excluding livestock, reducing allocation levels, or causing the need for more range improvements. Generally, the areas of the allotments involved are small, averaging less than five acres. However, about five allotments have riparian areas which make up a substantial part of their acreage; grazing management on these allotments would be greatly impacted. The proposed forestry management objectives in the Case Mountain area would impact one grazing allotment by decreasing use seasons and/or decreasing use areas in that allotment. Any reduction in area would require expensive

livestock barriers. Forestry management in other areas would not impact grazing management.

Management of the Temblor and Caliente NCLWMAs for the improvement and maintenance of wildlife could cause impacts to grazing management on eleven allotments by restricting use seasons, reducing allocation levels and causing the construction of costly new or modified range improvements. Vegetation manipulations for the benefit of wildlife could also benefit livestock management objectives by providing more lands available for grazing use and improved forage sources. The grazing management proposal through the Walker Pass CRMP has been implemented; thus no impacts to grazing would be anticipated from the proposed actions needed in the Monache-Walker Pass NCLWMA.

Oil and gas development, as predicted in the reasonable foreseeable development scenario would result in the disruption or eventual elimination of grazing use on four allotments containing approximately 774 AUMs in the Valley Management Area. The impact is associated mainly with surface disturbances, physical barriers and increased activities. Increased traffic and activity could result in the harassment of livestock and an increase in livestock control problems associated with open gates and damaged fences. Six additional allotments border the predicted major oil and gas development areas. If development expands outside of these areas, these six allotments could be impacted in a similar manner. Drilling for oil and gas could benefit livestock grazing management by discovering new water sources for livestock.

The establishment of designated routes of travel for recreational purposes as proposed for the Carrizo Plain Natural Area and portions of the South Sierra Management Area, if enforced, will have insignificant impacts to grazing management. The restriction on recreational traffic to existing routes of travel in other areas, including Keyesville in the South Sierra Management Area, is currently not effective in preventing a proliferation of new roads. This proliferation results in a loss of forage due to vegetation destruction. Use of existing routes of travel also could result in livestock harassment and increased sedimentation in water sources from increased erosion. Under current staffing and funding, impacts from designated routes of travel would be the same as those from existing routes of travel in the short term, due to delays in implementation and the reduced possibility of enforcement. Management of visual resources, wild, scenic or recreational rivers, and areas of critical environmental concern could have impacts to individual allotments such as seasonal use restrictions, exclusion of grazing use, or increased cost for construction of needed range improvements. The impacts to overall grazing management by the proposed management of these resources are anticipated to be low.

An estimated 56% of lands disposed under this alternative would fall within existing allotments and could result in up to 2,200 AUMs becoming unavailable to the current lessee/permittee. It is anticipated that the majority of these disposals will not be made to the current lessee/permittee due to economic constraints. An estimated 44% of lands disposed under this alternative would fall outside existing allotments and would result in an estimated 900 AUMs becoming unavailable for grazing lease or permit. The proposed disposal of scattered public land parcels could improve management of existing private grazing operations which had public land inholdings. This would happen by reducing unauthorized grazing on public lands and eliminating the need for costly range improvements that would be used to manage the public land differently than the private lands. The proposed acquisition of up to 99,000 acres of private land could provide an estimated 5,000 AUMs of forage for livestock grazing, if these parcels were not grazed under previous ownership. If these acquired lands were previously grazed, the grazing use on them could become more restricted than that which was allowed under private ownership. This could result in less forage being available to livestock for grazing. The proposed acquisition of private lands could

improve management capabilities on fourteen existing grazing allotments by blocking up scattered public parcels and providing opportunities for pasture systems, better livestock distribution through more efficient range improvement design, and improved management control within these allotments. Other land use authorizations and transactions such as rights-of-way, withdrawals, access acquisitions, land permits and leases would cause insignificant impacts to grazing management.

Proposed fire suppression actions would protect forage from being destroyed and unavailable for grazing. Suppression actions would also protect expensive range improvements. Proposed fire suppression actions could result in short term loss of forage by fire line construction and roads, but would be offset by long term benefits from protection of forage that would otherwise be destroyed by fire. Prescribed burns could remove physical barriers to livestock movement created by thick brush. The burns would also be expected to provide increased livestock forage and make currently unsuitable range suitable for livestock grazing.

Impending regulation for the control of fugitive dust (PM_{10}, which is particulate matter smaller than 10 microns in size) would only have a minor effect on entry or exit access to allotments on major arterial roads. Specific effects could include reduced speed limits, and controls on mud and dirt carried out on vehicles. Secondary roads, utilized for allotment use only, would not be affected due to agricultural exemptions or because of the low number of vehicles and trips on those roads. Impacts to livestock grazing management from PM_{10} vehicle use restrictions should therefore be insignificant. Air quality standards could restrict or eliminate the possibility of conducting prescribed burns that may benefit livestock management. Control measures to reduce PM_{10} emissions could restrict development and related activities from disturbing or expanding onto native rangelands, thus protecting the forage resource.

Implementation of the proposed management under this alternative can be accomplished with present funding and staffing. Impacts to the forage resource could be more severe or go undetected if funding or staffing are inadequate for full implementation in the future. Impacts could occur as a result of delays in preparing monitoring plans and providing range improvements, limited capability to conduct monitoring, and lack of enforcement to ensure compliance to management parameters.

Conclusion. The No Action Alternative would result in approximately 20% less forage being harvested from public lands. This is mainly caused by the seasonal restrictions designed to protect and provide recovery for Federally listed species. Impacts also occur as a result of the implementation of new mulch levels, and the establishment of perennial forage utilization levels on allotments within potential Federally listed species habitat. The No Action Alternative would consequently result in approximately 3,432 acres of public land with 656 AUMs becoming totally unavailable for livestock grazing, and the grazing seasons of the remaining authorizations being reduced by at least 16% due to the protection measures for known populations of Federally listed species and the combination of all Federally listed species' restrictions. In addition, 2,974 AUMs within existing allotments would be lost due to land disposals and oil and gas development. The opportunity for providing proper grazing management and increasing its efficiency through range improvement projects would also be slightly limited by Federally listed species restrictions and special land designations, such as recommended wilderness, proposed in this alternative. Flexibility of grazing management options would be severely impacted on allotments within potential habitat for Federally listed species (except California condor), by the compression of historical grazing seasons into short use periods.

Socio-Economic Impacts

The continued implementation of allotment management plans in both the South Sierra

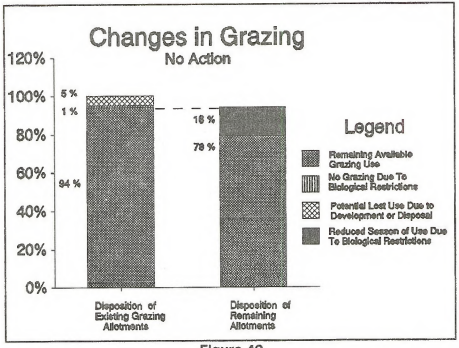


Figure 42

Management Area, and to a lesser degree the Coast Management Area will continue to slightly raise the operating expense associated with increased livestock management intensity and range improvement installation or maintenance.

Due to restrictions for the protection of Federally listed species, livestock forage would be lost from 3,432 acres of public land involving 656 AUMs within seven allotments. Hundreds of miles of new fences, possibly more than 300 miles, would be needed to separate public from private land on 62 allotments because of the mandate to protect and provide recovery for Federally listed species. The cost of this amount of fencing would be approximately $1,200,000 including labor. This would be a significant expense to most livestock operations, depending on land patterns, and may force some leases to be relinquished or even preclude grazing use on intermingled private lands thus forcing operations entirely out of business.

Conclusion. Under Alternative One, there would be no significant impact to grazing operations in the Coast and South Sierra Management Areas. There would be a slight to moderate adverse economic impact (depending on land patterns) to most of the 52 allotments within the Valley Management Area due to management changes required to protect Federally listed species.

Cumulative Impacts

The implementation of this alternative would result in improved resource conditions from present grazing management in all three Management Areas due to the application of more conservative forage utilization guidelines. The loss of flexibility caused by the proposed management guidelines adds to grazing management conflicts caused by the intermixed public/private land patterns. The restrictions can also result in the seasonal loss of part or all of the private rangelands adjacent to the public land, especially on cattle ranges. The loss of critical grazing seasons in the Valley Management Area will create severe adverse impacts on sheep operators that are also experiencing use restrictions in the BLM's California Desert District due to the Federal listing of the desert tortoise.

In part, negative cumulative impacts to grazing management from management restrictions for Federally listed species would be somewhat offset by reduced public and private land use conflicts and increased management efficiency brought about through proposed acquisitions and disposals.

Overall, proposed perennial plant utilization and annual plant mulch levels would provide a more reliable and sustainable forage resource for livestock grazing management. Ultimately, increased restrictions for listed species and air quality on all land uses would reduce the likelihood that native rangelands

would become unavailable for grazing use due to development for other purposes, provided grazing use is not eliminated as a result of restrictions required for protecting Federally listed species.

Overall, impacts to the livestock grazing industry in the Caliente Resource Area would be moderate considering that the majority of changes in grazing management due to protection measures or recovery efforts for Federally listed species would occur in the Valley Management Area where dependency upon the public lands for forage is low to moderate. However, the expense of new fencing to segregate private and public lands could preclude grazing use on adjacent private lands. This scenario greatly increases the significance of public land management decisions to the regional industry in the Valley and subsequently would substantially increase the overall impacts to the industry as a whole. The impacts could be slightly reduced by the potential benefits of a more dependable forage resource on public land as a result of the proposed management actions. Restrictions or removal of grazing use on public land could increase the already high demand for California's diminishing native rangeland and could cause increases in the price of private forage sources. This increased demand could also eventually affect the cost of red meat production for the western United States.

Mineral Resource Development

Exploration for and development of locatable, saleable, solid leasable and geothermal mineral resources are impacted by a variety of restrictions. (Oil and gas are discussed in the following section.) Withdrawals or closures, legislation to protect soil, water or air, establishment of wilderness areas, wild and scenic rivers, campgrounds, trails, and rights-of-way, restrictions due to threatened, endangered or candidate species habitat, and areas protected due to biodiversity, archeological, paleontological or historical resources may all result in limitations on mineral development. In addition, prior rights (e.g. rights-of-way), or development restrictions are so severe as to preclude exploration or development and may be considered to be "de facto" withdrawals.

Mineral development will be impacted primarily by the requirements of the Endangered Species Act and management prescriptions for Areas of Critical Environmental Concern. The resulting impacts will in aggregate add to the expense of permitting, extraction, and reclamation, perhaps rendering the development of certain deposits uneconomic. Compliance with the Endangered Species Act and wilderness recommendations are beyond the scope of this plan, and will apply under all alternatives. In the case of withdrawal or closure proposals, mineral development will be completely eliminated.

Within the Caliente Resource Area, Federally listed plant and animal habitat encompasses approximately 409,000 acres of BLM managed mineral estate. Found within the Resource Area are 5 Federally listed plants, 106 Federal candidate plants, 44 State listed plants, 27 Federal listed animals, 39 Federal candidate animals, and 30 State listed animal species. The requirements of the Endangered Species Act are non-discretionary, and impacts to mineral development are essentially unchanged between the alternatives of this plan. Therefore, the primary variable in this plan are management prescriptions for the Areas of Critical Environmental Concern.

Mineral development will be affected by the presence of Federally listed or candidate plant or animal species, as well as State listed species. Mineral development will be accompanied by time delays for the permitting processes. Field surveys, in addition to adding expense, will usually delay permitting until the optimal time of year to allow time to search for the plant or animal species. For large operations where take of listed species will be unavoidable, there will be the added delay of formal consultation with the U. S. Fish and Wildlife Service. For candidate species an informal conference will be required. Mineral development within the habitat for these species will face the added expense of

compensation and/or special mitigation measures, and perhaps seasonal restrictions on portions of the project area. It is possible that surface disturbance in some areas will be prohibited. Although Federal candidate species are not afforded the same protection under Federal Law as listed species, it is often the case that Federal candidates are State listed or receive lower levels of protection by the BLM. They therefore require special surveys, and potentially expensive compensation, unless it can be determined that there is little potential for the presence of the species in the project area.

In the Valley Management Area within habitat for Federally listed species, several mineral commodities are presently being mined or have potential for development. These commodities include gypsum, siliceous shale, sand and gravel, clay, and fuller's earth. Expansion of existing operations, or development of new deposits will be impacted by increased costs due to the permitting process, and compensation. Development of gypsum deposits may be rendered economically infeasible, requiring material to be transported long distances.

Phosphate occurs on Public Lands within the Valley Management Area within threatened or endangered species habitat, and within the Carrizo and Chico Martinez ACECs. It is not anticipated that these deposits will be mined within the life of the plan. However, it is anticipated that within 15 years local phosphate deposits will be re-evaluated for potential development. If these deposits were to be mined, impacts to mineral development would be similar to those described above for gypsum.

The range of the Federally listed Bakersfield cactus extends up to Loraine at an approximate elevation of 2,500 feet. Even though this area has high potential for gold and associated metals production, most of the known mines and occurrences are above this elevation. Also found in this area is the Kern primrose sphinx moth, a Federally listed species. This species primarily lives in sandy washes, potentially impacting widening of access roads. If either of these species are found in a project area compensation will be required.

In addition to those species which are afforded protection under State or Federal law, areas of sensitive or unique biological value have been considered by BLM and other agencies for protection. These include riparian areas, Joshua tree woodland, oak woodland, Piute-Cypress forests, sequoia groves, and Sargeant cypress communities. Also within the Caliente Resource Area, several candidate plant species are found on serpentine soils and limestone. Serpentine soil is often associated with occurrences of mercury (with potential for gold), and asbestos. Limestone could be valuable for cement, roofing granules, decorative rock, or associated skarn mineralization hosting tungsten, gold, copper or other metallic minerals. The presence of candidate plants, or sensitive or unique plant communities within these areas will impact mining by increased costs and delays. In some areas, projects may be denied - especially those involving leasable minerals or mineral materials.

Several Areas of Critical Environmental Concern (ACECs) have been proposed within this plan to protect a variety sensitive resources. Often these resources do not have specific protection under State or Federal law. The two following ACECs have high or moderate mineral potential and are closed or withdrawn to mineral development. Piute Cypress has moderate potential for gold and other metallic mineral resources. The Soda Lake ACEC has salt and sodium sulphate solid leasable minerals. The normally dry lake bed contains estimated reserves of at least one million tons of sodium sulphate.

The study or designation of the North Fork of the Kaweah River as Wild and Scenic will effectively withdraw much of the area from mineral location. The area has moderate potential for tungsten and related metals.

For areas remaining open to mineral location, a plan of operations will be required for mining operations (under the mining laws) within

ACECS where a notice would otherwise be sufficient. This increases costs to mine operators and BLM, since regulations mandate that BLM prepare the environmental analysis.

The mineral potential of lands proposed by BLM for withdrawal (eg. Areas of Critical Environmental Concern, or Wild and Scenic Rivers) will be examined by BLM personnel. Time and budget constraints will probably allow for only literature review with minimal field work, resulting a study where the nature and distribution of mineral deposits will be poorly known prior to withdrawal. Some areas, such as restrictively classified Visual Resource Management areas, will receive no mineral potential review except for the broad classifications produced for this document. As a result, potentially valuable mineral deposits may not be identified or developed, since withdrawals will discourage even casual prospecting.

Presently, development of locatable minerals is restricted on about 1,000 acres of BLM administered land by formal withdrawals. Proposed additions to the Wild and Scenic River System may affect up to 15,000 acres (however some lands are included within Wilderness Study Areas). The acreages listed above do not vary between alternatives of this plan. About 5,400 acres of BLM administered land is included in Visual Resource Management Class I and Class II areas in alternative I. In these areas mineral resource development will be severely restricted if not precluded.

Conclusion. Nearly 5,000 acres of mineral estate reserved to the United States on lands patented under the Recreation and Public Purposes and Small Tract Acts are closed or highly restricted to mineral development. About 6,000 acres of reserved mineral estate in the Lake Isabella area, and in Sand Canyon near Tehachapi, are also effectively withdrawn since the surface has been developed for residences. About 409,000 acres of land are considered habitat for Federally listed species. Measures to protect these species will increase costs to operators for compensation, and/or mitigation. In addition, measures to protect the habitat of State listed species will add to the burden of producing mineral commodities.

Presently, development of locatable minerals is restricted on about 1,000 acres of BLM administered land by formal withdrawals.

Decisions made in the previous land use plans to withdraw an additional 6,250 acres are brought forward in the No Action Alternative of this plan for implementation. Management prescriptions for Areas of Critical Environmental Concern will not close any areas to geothermal resource development, but will close 3,000 acres to solid leasable minerals, 7,000 to locatable minerals and 4,000 to salable minerals.

Cumulative Impacts

The cumulative impact to mineral development by restrictions, withdrawals and closures proposed in this alternative will be moderate. Primarily the impact will be to increase the cost of production.

Added to the impacts of this plan on the development of mineral resources are numerous State and Federal laws and regulations which govern mining operations. The cumulative effect of these laws and regulations plus this plan will be to make mining operations more expensive, some prospective operations will probably be precluded.

Air quality standards may inhibit development adjacent to wilderness areas. Mining within wilderness areas on mining claims with grandfathered valid existing rights may also be severely restricted by visual resource management classifications. Before lands are included in the National Wilderness System, the Federal Land Policy and Management Act requires the U. S. Geological Survey and Bureau of Mines to conduct mineral potential reviews. Approximately 39,000 acres of public land are presently included or proposed for inclusion in the national Wilderness System.

Within the proposed wilderness areas in the Sierra Nevada, there are scattered occurrences of copper-silver-gold bearing limestone skarns and geochemical anomalies indicating undiscovered occurrences of these and other metals. Based on the present level of sampling none of the occurrences could be characterized as an economic deposit. However, the potential for economic development is low to moderate. Any deposits present will remain unavailable at least for the next 15 years if the Bureau's wilderness recommendations are acted upon by Congress.

Presently 1,800 acres of BLM land is designated wilderness, and about 39,000 acres are proposed for inclusion in the National Wilderness System. Wilderness Study Areas (WSAs) not proposed for inclusion total an additional 74,300 acres. Due to highly restrictive interim WSA guidelines which seek to preserve wilderness values, these lands are essentially closed to all forms of mineral development. Wilderness Study Areas will be closed to all forms of mineral development if they are designated Wilderness, except for claims with valid existing rights.

By restricting development of mineral resources, there may be impacts far removed from the Caliente Resource Area. Due to limited supplies in the United States or lower costs due to low wages or non-existent environmental regulations in other nations, some mineral commodities (such as gypsum and phosphate) may be imported. Importing these commodities will cause environmental degradation in developing countries from which mineral commodities will have to be imported, since environmental laws may not exist or are not enforced. Also there may be increased hydrocarbon emissions by train, trucks, or ships transporting the material.

If local deposits are unavailable due to high costs of mitigation they probably will be imported from other countries. Importing these commodities rather than mining deposits found in this area may increase the trade imbalance.

The contribution of this alternative to these problems is incremental, although the extent is negligible.

Oil and Gas Development

The implementation of the No Action Alternative will result in minor impacts to oil and gas activities on lands with high to moderate oil and gas potential. Negligible impacts are expected from management of the 458,000 acres of land with no or low oil and gas potential. Under this alternative, 2,000 acres with moderate to high potential for oil and gas fall within non-discretionary closures, and no lands within discretionary closures. Approximately 424,000 acres of moderate to high potential lands are open to leasing subject to major constraints, and 55,000 acres of moderate to high potential lands are open for leasing under standard lease terms.

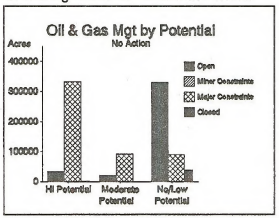


Figure 43

The primary impacts to oil and gas activities are those that affect the cost of exploration, development, and production. The types of impacts that can occur are described below.

Certain costs are beyond the scope of this plan and will not be impacted by implementation of this alternative. Economic deposits of oil and gas are rare, discontinuous, and commonly covered by thousands of feet of rock. Often there are no surface indications of the deposit occurring. As a result oil and gas is expensive to find and produce. It is estimated that up to 20 dry holes are drilled for each new successful exploration (wildcat) well. Drilling and production may involve many

hazards including blowouts, loss of logging tools downhole, collapsed casing, sanding up of the perforated interval, and the threat of the formation caving into the hole. These expenses are not affected by the No Action Alternative.

The types of impacts vary. A positive impact of the implementation of this alternative, is allowing public lands to be offered in regular lease sales each year. This will benefit the oil and gas industry in the resource area by providing new exploration and development opportunities on a regular basis. Possible negative impacts include delays to operations, limits that will require directional drilling, movement of operations to other sites, or even denial of operations. These will all result in greater costs.

Delays may extend from a few weeks to a year or more, possibly causing the corporation or investors to seek more timely opportunities elsewhere. Up-front costs (acquisition of information, time and payroll costs in the evaluation of the information, and other factors) which are indispensable in development of prospects to be drilled, may not be recovered in a timely fashion. These items may combine to make the drilling of wells uneconomical.

Moving operations adds to crew-time costs and machinery costs. Directional drilling can add greatly to the funds required by operators by requiring directional surveys, more pipe, and increasing the possibility of tools and other equipment getting stuck in the hole. Denial of operations may cause drilling rigs to be shut down, loss of production, and subsequent loss of royalties to the Federal government.

Delays in the reactivation and re-working of temporarily abandoned wells may also occur, affecting operator participation in State and Federal programs. For example, if threatened and endangered animals and plants occupy the temporarily abandoned site and re-working the well presents a hazard to the species, the well would be unable to participate in the State idle well program, or proposed (1992) Federal stripper well and idle well programs. This could result in moderate additional costs to the operator in the form of lost revenue and mitigation costs.

Impacts From Air Quality Management

Oil and gas operations can only take place on BLM land if the operator is in compliance with local air pollution control districts (APCDs), as well as State and other Federal regulations. The BLM may require proof of compliance with local APCD requirements. Although the cost of compliance will not change, delays may result if documentation cannot be presented in a timely fashion. There may be additional minor costs as a consequence.

Small particulates, including dust, are produced in the grading of pads, driving heavy trucks and machinery along unpaved roads, and seismic exploration, which are common in the oil fields. San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) figures indicate that less than 5% of these pollutants come from activities related to oil and gas. BLM requirements for PM_{10} abatement will limit usage of some roads, and demand prompt rehabilitation, including requiring dust and other particulate control measures.

Impacts From Land Uses

Lands in the Caliente Resource Area include 487,000 acres of public land surface with mineral rights, and another 452,000 acres of split estate lands. Split estate involves private surface and public mineral rights most often, though sometimes the surface is public and the mineral rights private. Split estate lands in oil and gas areas with no to low potential will be considered for disposal to the private sector. Parcels with high to moderate oil and gas potential usually have mineral rights reserved to the government even though the surface may be involved in exchanges.

Land tenure adjustment is also used to eliminate isolated tracts which pose difficulties in management. In return, land adjacent to

larger blocks of public land is acquired, facilitating management of those blocks. The retention of mineral estate with high oil and gas potential when land is disposed of would minimize the loss of oil and gas development opportunities. It would, however, create additional split estate lands. Exploration and development on these lands can be delayed and slightly more expensive due to the need to deal with the surface owner in addition to the BLM. Some acquisitions may occur as a result of compensation for impacts to threatened or endangered species. The availability of compensation as an option facilitates oil and gas development by allowing an action to proceed in sensitive habitat. The identification of lands for acquisition should facilitate this compensation.

Approximately 40,000 acres of public land would be considered for disposal with 30,000 acres actually disposed after environmental review. It is expected that between approximately 25,000 to 40,000 acres would actually be acquired under Alternative 1.

High to moderate oil potential lands which are also major areas of land acquisition include the Carrizo Plain, and Kettleman Hills. Low to no oil and gas potential lands which are also major areas of land acquisition include Case Mountain, Blue Ridge, Chimney Peak, and South Fork of the Kern River Areas. Few lands in areas of high potential have been identified for disposal; therefore negative impacts as a result of sale or exchange will be minimal.

Economics, legislation and demand dictate the need for leases and land permits. Rights-of-way are usually for construction of pipelines etc. About 30 applications for rights-of-way involving oil and gas are received each year. Roads and access are essential to oil and gas operations. As the use of undesignated routes may be approved for administrative purposes, there will be only minor added costs and an emphasis on using designated routes of travel. Restriction to designated routes of travel could result in some minimal restrictions on placement of facilities, and timing delays for rights of ways, resulting in minor added costs. Impacts to oil and gas development are expected to be minor at most from land permit issues under this alternative.

Oil and gas lease sales could occur quarterly as a result of this alternative. This would provide a small, but significant positive impact to oil and gas development. A total of 280 to 770 acres of land are expected to be reclaimed from plugged and abandoned well pads and their associated facilities. The net new surface disturbance is expected to be 1200 to 4000 acres for drilling, seismic exploration, and production facilities, out of a total of 390,000 acres of Federal land in the valley. At the maximum, this is a total of about one percent (1%) of the lands involved.

The management of ACECs under the No Action Alternative would not result in the withdrawal of lands under discretionary closures. Moreover, the ACECs were screened and oil and gas potential is generally low in these areas. No impacts are expected.

Impacts From Grazing Management

Grazing is largely not compatible with large scale oil and gas operations. The loss of animals in sumps necessitates fencing or screening of the sumps during all phases of drilling and production. In some cases drilling may be delayed to allow cattle to be moved, or the drilling sites moved to avoid stockwater. These however do not constitute major constraints to the development of the oil and gas resources, and impacts are still expected to be minimal.

Impacts From Recreation Management

Recreation and extensive oil & gas development are largely incompatible. However developed oil and gas fields within the Caliente Resource Area contain few recreation opportunities, due to a lack of special features and values. Vandalism and liability for injury may increase operating costs in some areas. As urbanization continues in the Caliente Resource Area, more conflicts with the pubic are expected. There will be a gradual increase in paved roads (encouraging access), adding to the need for protective

fencing and signing. Additional urbanization and public development could result in additional constraints being placed on oil and gas development, resulting in a denial of authorizations, more costly directional drilling and fencing costs, and increased vigilance in the oil fields.

Although impacts due to interaction with the public are projected in the form of additional costs, most operators will be minimally affected. Primary negative impacts will be from vandalism and liability costs.

Impact From Solid Mineral Management

The development of oil and gas is generally unaffected by mining concerns, due to the ability of oil and gas operators to avoid conflicts through directional drilling. Metamorphic, igneous, and hydrothermal solid mineral deposits are found usually in inverse relationship to oil and gas, due to the volatilization of hydrocarbons in those environments. It is not expected that there will be impacts related to the development of solid mineral deposits, other than sedimentary type deposits. There are two active siliceous shale mines on the west side of the San Joaquin Valley which produce from the Monterey Formation. The Monterey in the vicinity of the mines is incised by erosion and is not in a high potential area. Oil and gas is a more valuable commodity than many minerals or mineral materials, so economics will dictate that the presence of solid minerals will not hinder the development of oil and gas. Impacts to oil and gas activities should therefore be minimal.

Mineral material used for sumps, berms and other construction is commonly derived during the grading of the pad, and is counted in the amount of surface disturbance expected in the development of the pad. It is projected that any necessary mineral materials will be acquired from pad development, or will be obtained from currently existing pits on private or leased lands. In any event it is estimated that there will be negligible impacts from restrictions on mineral material extraction.

Impacts From Threatened & Endangered Species Management

Regular leasing of lands by the BLM could result in the issuance of up to 50 new leases per year. It is expected that development could occur on all of the lease, a portion of the lease, from adjacent lands. The controlled surface use stipulation (Stipulation C1 in Appendix G-3) might preclude drilling on some leases if they include large tracts of threatened or endangered species, and if directional drilling is either not an option or would be too expensive. In that case the oil and gas resources could not be fully developed. However, this is expected to be a very rare occurrence. It is estimated that impacts to oil and gas wildcat drilling from management of threatened and endangered species under the No Action Alternative will therefore be minor to moderate on new leases, and negligible on existing leases.

A controlled surface use stipulation is proposed for nearly all of the unleased lands with significant oil producing potential in the San Joaquin Valley. Therefore, once these lands are leased, inventories must take place to determine whether threatened and endangered species and their habitats exist on the subject lands prior to initiation of most exploration and development activities. This stipulation can cause delays, denial of the application, or movement of the operating site - all of which add to costs.

The controlled surface use stipulation can be waived or an exception granted once inventories for threatened and endangered species are completed on land to be leased, if the exploration or development of the lease is not found to conflict with the species or its habitat. Currently existing leases, including those held by production, are limited by existing terms and conditions, and would be unaffected by any stipulations identified in this plan.

As a consequence of the added costs from the controlled surface use stipulation, more care will be given to defining, selecting, and drilling

exploration wells. Consequently more geophysical exploration (primarily seismic) will be run prior to exploration drilling. As relatively little geophysical exploration is currently taking place in the resource area, impacts should be minor under this alternative.

It is estimated that 45% of the projected total of 100 to 500 miles of all types of seismic lines will be run cross-country, resulting in from 45 to 225 acres of surface disturbance. Proposed seismic survey routes in threatened or endangered species habitat may have to be rerouted or delayed in order to comply with the Endangered Species Act; this alternative is not expected to alter those impacts.

Currently 3D seismic surveys constitute 15-20% of all land surveys. These seismic surveys require a greater density of lines to be run; spacing may range from 1/4 mile to 2 miles. Under this alternative, 3D seismic projects may be denied or delayed more frequently than those involving regular seismic lines due to their greater density. This is expected to be a somewhat rare circumstance, and impacts are considered minor to both types of seismic operations.

Surface disturbance projected from seismic exploration, when compared to the total of 380,900 acres of BLM land in the Valley, is negligible (see RFD Appendix G-2). Mitigation measures addressing rehabilitation are therefore expected to result in only minor added costs.

Nearly 75% of all Federal wells drilled will be development wells within the Midway-Sunset Field. Most undiscovered reserves are expected to be in or adjacent to existing fields. Impediments to development are expected to be lower in these areas, because of the probability of nearby lands having already been disturbed during past development. The potential availability of these sites for the use of directional drilling should result in negligible amounts of new net disturbance. As a result, new APDs should have a very high rate of approval in areas adjacent to or in developed fields.

The implementation of new conditions of approval for drilling, including drilling on currently leased lands, will require some additional mitigation measures, delays, moving of well sites, and even denial of new drilling, although denials are expected to be rare. Oil and gas operations in existing fields are expected to have minor impacts from management of threatened and endangered species constraints under the No Action Alternative.

To summarize, new leases can expect minor to moderate added costs due to delays, denials and moving of drill sites as a result of the controlled surface use stipulation (C1). However, overall the No Action Alternative will result in minimal added costs, in part because most lands which are producing and are expected to be drilled, are already leased and are not subject to the new stipulations. Other actions should have negligible impacts.

Impacts From Water Quality Management

Section 208 of the Federal water Pollution Control Act and the State of California Nonpoint Source program establishes a plan for identifying Best Management Practices on public land. These are to be coordinated with the concerned regional boards. Nonpoint Sources include industrial storm water discharge issues, such as roads, and impacted industries such as mining, and oil and gas. These requirements are intended to eliminate illicit discharges by requiring containment and monitoring of pad areas, including sumps. These restrictions would also benefit other areas where drilling and production fluids might leak or be washed off-site by storm waters. Compliance with new water quality regulations adds costs for monitoring run off for toxics in producing areas. Current regulations regarding sumps, abandonment of sumps, berms, and the tanking of drilling fluids and disposal of contaminated soil also add costs to production and development. The implementation of this alternative will not affect these requirements, although increased compliance checks may add minimally to the costs of operations.

Aquifer integrity is another prime concern. Downhole formations are isolated to protect against contamination of aquifers. Existing legislation requires the protection of aquifers by appropriate well casing and cementing practices. Older wells will continue to be inspected to determine the degree of sealing done during drilling and completion across aquifers. Newer wells will be monitored by the running of Cement Bond Logs, or other appropriate measures to ensure the integrity of casing and cement across aquifers. Water disposal wells will also be inspected to protect aquifer quality under this alternative. Remedial actions will be required, if warranted. There will be minor to moderate costs as a result of required monitoring.

Unlined sumps are prohibited if there is any potential for impacts to natural drainages or groundwater. In other areas unlined sumps may be required to have leak detection systems. Prevailing spill contingency plans and proper well abandonment procedures safeguard ground surfaces, natural drainages, and subsurface aquifers. These practices are not expected to be impacted by this alternative.

Currently existing Bureau standard operating procedures in the oil fields also ensure formation integrity and aquifer protection. Oil and gas operators must already comply with existing regulations and procedures including those of the BLM. Additional costs due to the implementation of this plan will be minimal, as it will primarily result in ensuring compliance to existing regulations.

Conclusion. The No Action Alternative in general will result in minor impacts on oil and gas development. Oil and gas operations will benefit from regular lease sales, without the potential delays which could result from separate environmental assessments which would be necessary for each offering if this plan were not implemented. Negative impacts in the form of higher costs are expected from management of air quality, recreation, threatened and endangered species, and water issues. Each individually contributes minor impacts. Their cumulative impacts could force some small operators out of business due to the currently (1992) depressed local oil and gas economy.

Forces beyond the BLM are often controlling factors. In the long term the slow pace of development will ensure continued operations for known and currently unknown reserves of oil and gas. A rapid increase in oil prices would favor rapid development of oil and gas in the Caliente Resource Area, leading to higher employment, and more dynamic local economy. However this is not expected, instead oil and gas will continue to be a sluggish economic giant in the Caliente Resource Area, unless international events force changes. Due to international forces and/or influences beyond the purview of this plan and its alternatives, major oil companies will continue to reduce their presence in the Resource Area, which may intensify chilling of the local economy, causing local tax roles will suffer, and possibly culminate in loss of public services.

Cumulative Impacts

The cumulative impacts to the development of oil and gas are varied. Development directly relates to prices and demand. Oil prices are a combination of costs related to the site at which the oil is discovered, and the balance between supply and demand. Costs of production and exploration are often higher in California as a result of environmental concerns, such as those addressed in this plan. Any added costs, even minimal costs, could result in some small operators going out of business because of the depressed oil and gas economy.

Local major oil companies have been going through a process of winnowing or re-evaluating reserves in California. Added costs could result in their pulling even more operations out of the resource area. This negatively impacts employment, and leads to a chilling of the local oil and gas economy. Any drop in operations could result in higher numbers of unemployed, a demise of smaller

to medium companies, loss of tax income, and royalties revenue. Due to international forces major oil companies will continue to relocate out of the Resource Area, intensifying the effect on the local economy, local tax roles will suffer, culminating in loss of public services. The minor to moderate costs described earlier will have a slight impact overall, especially when compared with and added to other factors beyond the scope of this plan which influence oil and gas operations. However, the degree of consequent hardship is dependent on the size of the company sustaining the losses and increased costs; a major oil company will sustain a minor impact from an action that could impose severe impacts to some smaller independent operators.

Clean air and water quality requirements have the most potential for negative impacts to oil and gas development. The Clean Air Act has resulted in policy changes which are already influencing fuel choices, increasing the demand for natural gas. California uses almost all of the natural gas it produces and it imports about 50% as of this writing. Changes in Clean Air regulations dictate natural gas powered co-generation plants, more computerized functions in drilling and development, changes in flaring policies, changes in types of fuels for drilling and production engines, and other technological changes in the oil fields to protect the public from emissions and particulates. The Mojave pipeline brings natural gas for cogeneration from Wyoming and other states. It came on line in early 1992, and immediately decreased the price paid for natural gas produced in California by as much as $1.00 a thousand cubic feet of gas. Increased demand dictates that prices will rise again over the life-time of this plan. The added effects of this plan are expected to be insignificant.

Even though the San Joaquin Valley produces nearly 80% of California's crude oil, impacts to oil and gas production as a result of efforts to control global warming are more likely to occur as a result of limitations imposed by other State, Federal, or local agencies than as a result of this plan. It is not estimated that industry will be significantly affected by these controls within the life of this plan.

The number of wildcat wells on Federal land is extremely variable and is based on world events, supply and demand (which determine price), and recent discoveries of new pools or structures which lead oil companies to attempt to follow similar leads or trends. The drilling of a wildcat well on public land may therefore affect drilling activity on private lands and vice versa. The low level of wildcat activity on Federal lands [in 1991 (through September 30, 1991) 6 Applications for Permits to Drill wildcat wells were filed involving Federal land in the Caliente Resource Area]is not expected to have a measurable effect on adjacent private lands or overall wildcat programs.

Most drilling will be development drilling in the Midway-Sunset area on lands leased prior to 1992. Development drilling includes drilling enhanced oil recovery wells. It is less costly to derive incremental oil from enhanced oil recovery than to aggressively search for new fields, therefore enhanced oil recovery drilling is increasing in the Resource Area. California Division of Oil and Gas figures show an increase of 8% to 20% in enhanced oil recovery within the various producing basins of the Caliente Resource Area from 1989 to 1991. Therefore it is projected that oil wildcat drilling will decline, and thermal enhanced oil recovery will expand and produce even more than the 51% of California's oil that it does today. These trends should be unaffected by this plan.

The result is that under this alternative there may be about 200 APDs will be issued per year, and up to 8 wildcat wells may be drilled each year. Enhanced oil recovery drilling will increase from 4% to 10% a year over the life of the plan. There will be up to 5 Notices of Intent (NOI) to shoot seismic and 45 to 225 acres of related short-term disturbance per year. There will be up to 770 acres of lands reclaimed over the life of the plan from all types of disturbance, and up to 2 new fields discovered on Federal lands. Therefore net surface disturbance will be from 1,160 to 3,500 acres. This is less than 1% of the total Federal lands

and is a negligible amount of disturbance. Only 13% of production and operations is from Federal lands - the remaining 87 % encompass private land holdings. The effects to most operators will be minor, although operators who have large Federal holdings may sustain minor to moderate impacts.

Finding costs have been $8-$12 a barrel for oil of an average gravity in recent years. In general the selling price should be about three times the finding cost to yield an acceptable rate of return. Current oil prices are $12-$23 a barrel, therefore, finding costs must be lowered to $4-$7 a barrel. Profit margins are low ($2.00-$4.00 a barrel, mid-1992) for heavy oil, even in enhanced oil projects. The result in the industry is curtailed drilling except in producing areas. Some major oil companies are expected to sell many of their of heavy oil projects because of the low profitability. Adding to this is a projected leveling of demand due to increased taxes, raising pump prices, improving fuel efficiency and alternate fuels. Higher prices could decrease gasoline demand by 1-5% by 1995. This could force some smaller refiners and operators out of business. The contribution to this problem from added costs resulting from this alternative is expected to be minor, however.

New technologies such as the horizontal drilling of fractured or steeply dipping reservoirs are becoming more common. Currently (1992) it is estimated that oil prices must be at $25.00 to $35.00 a barrel (coupled with sizable cuts in drilling and completion costs) before horizontal well technology will be economical for widespread enhanced oil recovery use. The estimated lower range of oil prices is projected to be about $24.00 a barrel in ten years, suggesting that horizontal drilling in enhanced oil recovery projects would not be economical with current technology at the projected lower price range. Additional new technologies could reduce costs; they include the following: Petrolphysics ultra short radius radial system, top drives, polycrystalline diamond compact bits, oil base mud, and measuring while drilling (MWD) tools. The use of these technologies will not be constrained by the implementation of this alternative.

A Federal stripper well royalty reduction and incentive plan as currently (April 1992) proposed could result in the reworking of marginal wells with a significant number (± 20%) converting to enhanced oil recovery (EOR). This could lead to moderate to high positive impacts to oil and gas operations.

As of this writing (1992) the State already had an idle well policy. This has led to the transformation of idle wells to active status (enhanced oil recovery or to an otherwise productive well) by working over the idle well. This is often more economical than drilling and completing a new well. Conflicts as a result of the management of other resources could reduce or delay participation in the current State plan, or the proposed Federal plan. Under the No Action Alternative there may be added impacts to these activities, from the management of threatened and endangered species which may have inhabited the non-active well pads in the interim. As inventories of good quality used pipe, stacked rigs and other equipment are depleted, drilling new well replacements will be at even higher costs.

As increased regulations restrict activity on public lands, nearby or adjacent private lands will undergo greater surface disturbance. Public lands may be avoided in order to run seismic lines, or to directionally drill wells. All such actions will result in greater impacts to private lands. Conversely, as increasing urbanization, agriculture, oil and gas development, and other events take place on private land over the life of the plan, public lands will act even more as refuges for Threatened and Endangered species. Consequently disturbances on public lands may have to be gradually curtailed to protect the remaining habitat. This may result in an escalation of impacts on private lands.

Recreation

Off highway vehicle use would be designated as "limited" on most public lands under

Alternative 1. Vehicles would be limited to established designated routes in the Carrizo Plain Natural Area and the South Sierra Management Area, and to newly designated routes elsewhere. Closed areas include the Point Sal and Blue Ridge ACECs and Machesna and Santa Lucia wilderness areas. No OHV open areas would be available under this alternative. As unauthorized OHV routes and open areas are signed and closed, there would be a small decline in the routes used for this type of unauthorized recreational activity.

The disposal of about 39,000 acres of small isolated parcels of public lands would have negligible impacts to recreation use. Most of these parcels have no public access and their use is controlled by the adjacent landowners. Retention of these parcels would not benefit public recreational use or opportunities.

Acquisitions of land which increase public access would increase recreational opportunities and use. However such benefits would be limited, as public use of most acquired lands would be restricted to protect threatened and endangered species or other special values.

Acquisition of public access to the Duck Pond and Goose Lake would benefit birdwatching, environmental education and nature study opportunities in these areas. Non-motorized public access would be acquired to Cypress Mountain and pedestrian access to Point Sal, which would increase walking, hunting and related outdoor pursuits in these areas. Except for public access, no additional facilities would be developed for recreational use.

The North Fork of the Kaweah River would be managed for extensive recreational use with the establishment of basic sanitation and recreation facilities.

Camping within the 98,500 acre Carrizo Plains Natural Area would be restricted to 2 locations with dispersed camping allowed by permit only. This would result in some loss of dispersed camping opportunities which would primarily affect hunters setting up camp near their hunting area.

The designation of an area for dog trials and a shooting range within the Temblor NCLWMA would provide for organized activities of this type. There are adjacent public lands to accommodate any other recreational users who might be displaced as a result.

Cooperative management with Santa Margarita Lake County Park on adjacent BLM lands would increase the recreational opportunities and use of these areas for hiking and other non-consumptive uses. There could be a minor loss of hunting opportunities on these lands. BLM lands near Montana de Oro State Park have not been identified as being available for the expansion of the State Park. Therefore no changes in the recreational uses of these latter public lands are anticipated.

Public lands within 1/4 mile of normal high water will be managed to protect the values of any waterway which has been found to be eligible for potential designation under the Wild and Scenic Rivers Act. Designation of a waterway as a wild, scenic or recreational river could result in a small increase in visitors from those attracted by the river designation.

Proposed riparian management would slightly benefit recreational use by providing better hunting, birdwatching and scenic quality.

Lands within wilderness study areas will be managed under the guidelines of the wilderness Interim Management Policy. If designated as wilderness they will be managed under BLM wilderness policy. The designation of an area as wilderness would likely result in a minor increase in public use by those attracted by the wilderness label.

Enhancement of wildlife habitat to increase wildlife populations would improve hunting and wildlife observation recreational opportunities. Prescribed burning, by enhancing wildlife habitat and reducing the potential severity of wildfires, would also enhance recreational use. There would be a short term negative impact to scenic values from prescribed burning.

The management of ACECs and other lands for sensitive resources would not have a significant impact on recreation, although some recreational activities may be restricted within the ACEC and users displaced to other less sensitive areas. Public lands in the Goose Lake ACEC (40 acres) would be limited to pedestrian use off of designated routes.

Up to 100 white fir trees near Case Mountain and 200 pinyon pine trees near Chimney Peak would be available as Christmas trees for non-commercial use. A restricted amount of firewood cutting would also be allowed. This would provide limited amounts of these types of recreational use.

Grazing would continue on 413,000 acres with small adjustments from present practices. No significant changes to current impacts on recreational uses or opportunities would be expected.

The retention or revocation of withdrawals would have limited impacts on recreational opportunities. Impacts would occur only if these lands are subsequently developed for mining or for oil and gas operations. Reasonable foreseeable developments in oil and gas development or mining activities would result in minimal impacts on recreational opportunities and uses.

Conclusion. Alternative 1 would have little overall impact on the recreating public. There would be little change from existing conditions and recreational opportunities. Increases in public recreation use from 1,620,000 visitor hours to 1,860,000 visitor hours can mostly be attributed to urban expansion and population growth. Some of the increase can be attributed to increased publicity and public visitation to the Carrizo Plain Natural Area. Additional user conflicts can be expected to occur.

Cumulative Impacts

Visitor use would continue to adversely impact other resources in areas with high concentrations of recreational use. Adverse impacts would be greatest to the vegetation and soils in the North Fork of Kaweah and Keyesville areas. In areas like the North Fork of the Kaweah River public lands provide recreational opportunities not available elsewhere in the immediate vicinity. Other areas are privately owned or are part of Sequoia National Park or the Lake Kaweah recreation area. The Carrizo Plain Natural Area provides similar wild flower and wildlife observation opportunities as adjacent private lands. In most other areas nearby Forest Service lands provide similar recreational opportunities to those on BLM public lands and use trends would likewise be similar.

Vegetation

Federally Listed Species:

California Jewelflower [FE/CE (status codes are defined in Appendix B-3)]. The historic decline of the California jewelflower is due to overgrazing and conversion of native habitat to agriculture (Taylor and Davilla, 1987). Other threats to the species include oil and gas development, disposal of Federal lands, and off-road vehicle use.

Grazing directly impacts plants through trampling and herbivory. Trampling can damage or kill individual plants. This in turn may cause a reduction in annual seed production which affects the future of the species. Indirect impacts include soil compaction and the introduction of non-native species. California jewelflower is thought to be a delicacy to livestock and as such is heavily impacted by grazing (USFWS, 1991; Taylor and Davilla, 1986). The jewelflower is thought to be susceptible to grazing throughout its annual life cycle, which begins with germination usually in November or January after the first substantial rain. The jewelflower then over-winters in a rosette stage. In the spring it sends up flowering stalks, and seed is usually set by May.

The California jewelflower is known to occur in two grazing allotments (KCL and Temblor-Caliente) within the Carrizo Plain Natural Area (CPNA). These two allotments total 82,685 acres, but the jewelflower populations encompass only a small portion or pastures within these allotments. These known colonies of California jewelflower are protected from livestock grazing with small exclosure fences. Within the CPNA, livestock grazing will only be allowed between December 1 and April 1 on a three pasture rotation system. One pasture will be rested while two are grazed. The cattle turn on date will be alternated annually between early and late entry. Using this system, 2/3 of the pastures will be grazed each year. Only 1/3 of the preserve will have cattle on it at any time. Rotation of pastures between early and late grazing insures that early blooming plants are not heavily grazed each year. A maximum stocking limit is set to minimize soil compaction, and the minimum mulch level will be 500 pounds per acre. Perennial utilization will not exceed 20% of the current year's growth. Vegetation monitoring and research studies are an important part of grazing within the CPNA. A total of 39,002 acres managed by the Bureau, The Nature Conservancy, and the California Department of Fish and Game will not be grazed within the CPNA. Of these 26,082 acres are managed by the Bureau. Native grasses and other native species will be reintroduced to areas that were previously overgrazed or plowed. All known populations of California jewelflower within the CPNA will be fenced. Grazing would still occur within pastures with historic, but presumed extirpated, populations, and undiscovered colonies may be impacted. In addition to these allotments with known populations 46,343 acres of high potential jewelflower habitat will be grazed within the CPNA.

California jewelflower occurs in the Santa Barbara Canyon allotment outside the CPNA in the Cuyama area. In this allotment 74 acres along the Cuyama River will not be grazed to protect known occurrences of California jewelflower. The remaining 1,704 acres within the allotment will be grazed from December 1 to February 14 and from May 1 to May 31. This season of use is intended to protect any undiscovered colonies of California jewelflower from direct impacts from grazing during the jewelflower's blooming period. One other allotment outside the CPNA falls within a threatened and endangered species conservation area for the jewelflower. The acreage affected is 480. The season of use on this allotment is the same as for the Santa Barbara Canyon allotment.

Since California jewelflower has been known to germinate as early as November, undiscovered populations may be directly impacted from grazing. Under this alternative grazing is not allowed within known populations. Grazing would be restricted from February 15 to April 30 within threatened and endangered species conservation areas for the species. Also, a minimum mulch level of 500 lbs/acre and a maximum perennial utilization rate of 50% of the current year's growth will be applied to allotments within listed species habitat.

Impacts from grazing on California jewelflower should be minimal under this alternative. There is a risk that new populations of jewelflower will be found outside of threatened and endangered species conservation areas for the species. These populations would be inadvertently grazed. Once new populations are found they will receive the full protection of currently known populations. Protection will be implemented the following year. Possible impacts to undiscovered populations within threatened and endangered species conservation areas could result if the season of use is not appropriate for the species. Little is known about the requirements of the species. Research may find that some grazing is necessary for the continued vigor of the species. If this should be the case, not grazing the species could result in a gradual reduction in numbers over time. It is unlikely that withholding grazing for the life of the plan would result in the extirpation of populations.

Direct impacts from oil and gas development include losses in habitat acres, change in habitat quality, significant losses in plant individuals/populations, fragmentation of

habitat, and increased competition from exotic plant species due to habitat degradation. Indirect impacts include loss of soil structure, fertility, water holding capacity, and cryptogamic crusts, which seem to be an essential microhabitat feature for some of the rare plant species. Fragmentation essentially isolates locations of plants from other locations so that cross-pollination between locations becomes unlikely. This isolation can result in distinct genetic populations and the ultimate decline in the species because of the lack of genetic variability within populations. Roads associated with lease development increase access to off-road vehicle use, fragment populations, and contribute to additional habitat damage. Oil and gas development will primarily be limited to drilling within existing fields that are located within the range of the Federally listed plant species. Within these fields the development pattern is one acre per well. These large existing fields contain areas with good to moderate quality native vegetation. Native habitat has already been fragmented by existing development. A total of 950 to 1480 APDs are expected over the life of the plan. Between 800 and 1200 APDs will be located in areas of high oil and gas occurrence potential on the west side of the San Joaquin Valley (particularly Midway-Sunset). Associated with well development are pipelines, roads, tank batteries, and tank farms. It is estimated that a total of 1322 to 4037 acres within the range of the California jewelflower will be affected by oil and gas development on Federal surface and subsurface. Additionally, 70,510 acres of Federal surface and subsurface within the range of the species may be adversely modified by oil and gas development.

Approximately 10 to 50 acres within the range of the listed species will be disturbed by oil and gas exploration. Impacts to vegetation are minimized if seismic exploration occurs after the annual plants have set seed. Seismic exploration results in compaction of the soil, soil erosion, crushing of individuals or populations, loss of habitat from shot holes and drilling mud that is left on the soil surface, changes in the microhabitat for the species, change in the water run-off pattern, and invasion of non-native plants. In addition, the resulting tracks may attract more off highway vehicle (OHV) use.

Under this alternative, new oil and gas leases within listed species habitat will be issued with a special Conditional Surface Use stipulation. This Conditional Surface Use stipulation precludes surface disturbing activities from commencing until certain provisions have been met. One of these provisions is to conduct an inventory for listed species in and around the Surface Use Plan of Operation area. If the inventory indicates that neither listed species nor their habitats are present, the Conditional Surface Use stipulation may be waived and surface disturbing activities may be authorized.

If the inventories indicate that listed species are present, surface activities may be allowed if implementation of mitigation measures could reduce impacts to an acceptable level. If impacts cannot be reduced to an acceptable level, activities may continue to be prohibited on portions or all of the lease. The acceptable level of impact will take into consideration listed species objectives for the area, requirements for contributing to a recovery program for the species and the requirement to avoid jeopardy to the species. One new major oil field is expected to be discovered on public land, and public land may be included in other new oilfields. Development on public land resulting from issuing leases may include wildcat wells, roads and portable tanks. Many of these developments will not be retained and if rehabilitated, will produce short term effects. Where rehabilitation is not performed or the site has been altered significantly, habitat loss will be long term. Under this alternative, it is estimated that a minimum of 24 acres and a maximum of 1,520 acres, with 160 acres as the likely amount, of potential listed species habitat on Federal surface and subsurface may be adversely affected by eventual development, due to fragmentation and the introduction of non-native species. Between 2 acres and 90 acres (with 7 acres as the likely amount) of potential listed species habitat on Federal surface and subsurface is expected to

be removed by such development. Leased areas which include listed species habitat are likely to be relatively undisturbed and of high habitat quality.

With the use of this Conditional Surface Use stipulation, although the amount of acreage eventually developed would be the same, the areas of development are expected to avoid areas of importance to listed species. The Conditional Surface Use stipulation would also allow for the preclusion of all surface disturbing activity from the entire lease, should this be required to meet listed species objectives for the area. Retention of the option to preclude all development is necessary, since these leases will be issued without the benefit of site specific inventories or the benefit of completed recovery plans. If site specific inventories or completed recovery plans were currently available, a decision may have been made to close certain parcels of lands to leasing at the time of RMP development. Potential habitat for listed species may be developed possibly resulting in the loss of areas important for the recovery of the species.

Listed species primarily occur within the Valley Management Area where 14,000 acres shall remain available for disposal. Of these acres, it is expected that 75% or 10,500 acres will actually be disposed. Each parcel would be analyzed as required by NEPA. To determine if sensitive species or suitable habitat occur on a parcel, surveys must be made usually during the plants' flowering period. Important habitat could be inappropriately disposed of if the parcels are not analyzed at an appropriate time. Many annual plants only appear during years of higher precipitation which falls when the plants are able to use it. Marginal habitat important for the recovery of a species could be disposed under this alternative. It is expected that most lands transferred to the private sector will be used in the same manner as when they were under Federal ownership. The type of usage may remain the same but the level of usage may increase, resulting in habitat degradation and loss. Federally listed plant species on private lands have virtually no protection under the Endangered Species Act although some private organizations such as The Nature Conservancy may afford the plants even greater protection. Approximately 10% of the acreage transferred to the private sector will be developed with roads, buildings, etc. This would result in the permanent loss of 1,050 acres of potential habitat for the listed species. Development adjacent to native habitat fragments the habitat and indirectly impacts surrounding lands with increased dust and pollution. Once development has started in an area, further development of adjacent natural lands is likely.

A total of 98,000 acres were identified as potentially suitable for acquisition within the Valley Management Area. Emphasis will be placed on acquisition of high resource value lands such as Carrizo, Goose Lake, Lokern area, and Wilderness Area inholdings. Acquisition of lands with listed or sensitive plant species will benefit these species by providing additional protection.

In this alternative, 605,000 acres of mineral estate will remain available for solid mineral leasing, as well as development of mineral materials and locatable minerals under standard lease terms and conditions. Areas within listed species habitat and certain ACECs are available subject to major constraints. Listed plants and other sensitive species may be impacted from mining operations due to soil disturbance, erosion, and soil compaction. Off-road vehicle use associated with mining activities will result in impacts to vegetation.

OHV use physically destroys herbaceous annuals and perennials, shrubs and young trees. Adult trees may also be seriously damaged from exposure of their roots. OHV use results in soil compaction and erosion, further preventing or discouraging the reintroduction of native species once OHV use is removed. Non-native species are often able to invade under these conditions. Vehicle travel within the resource area is limited to designated routes of travel. Most impacts to vegetation from authorized OHV use should be avoided.

ACECs Expected to Significantly Benefit Sensitive Plant Species or Communities			
ACEC	Federally Listed Species	Candidate Species	Sensitive Plant Communities
Chico Martinez			X
Elkhorn Plain	X	X	
Goose Lake		X	X
San Andreas Fault Scarp	X	X	
Soda Lake		X	X
Piute Cypress		X	

Table 25

San Joaquin Woolly-threads (FE/-). The decline of San Joaquin woolly-threads is attributed primarily to the conversion of native habitat to agriculture. Urbanization and industrialization have also resulted in the loss of populations (Taylor, 1989). San Joaquin woolly-threads appears to be a poor competitor with introduced annual grasses (Taylor and Davilla, 1986).

The grazing system within the Carrizo Plain Natural Area is the same as that described for the California jewelflower. San Joaquin woolly-threads is known to occur in three allotments within the CPNA which total 87,492 acres. Seven other allotments are completely or partially within high potential habitat for the San Joaquin woolly-threads. These allotments total 41,536 acres. Because of the pasture rotation system, mulch requirements, and limitations on stocking rates, San Joaquin woolly-threads will likely not be adversely affected by grazing.

Outside of the CPNA, San Joaquin woolly-threads occurs in four allotments whose total acreage is 8,127. Another two allotments occur within threatened and endangered species conservation areas for the species. The area grazed within these allotments totals 2,184 acres. The effects of grazing on San Joaquin woolly-threads are thought to be primarily from trampling of the plant and disturbance to the cryptogamic crust. Because it often grows low to the ground and has very woolly foliage it is thought that the species is not directly impacted by livestock grazing. In April 1991, following an exceptionally wet March, woolly-threads were found growing in and amongst red-stemmed filaree, a preferred livestock forage species. In these areas the San Joaquin woolly-threads were almost as tall as the filaree. If these areas had been grazed at this time it is likely that the species would have suffered from direct herbivory from cattle that inadvertently consumed it while consuming filaree. In the spring of 1992, San Joaquin woolly-threads were observed by Bureau staff growing primarily among somewhat dense stands of tall non-native annual grasses in the Kettleman Hills area. This alternative proposes to exclude grazing from known populations and to not graze from February 15 to April 30 within threatened and endangered species conservation areas for the species. Also a minimum mulch level of 500 lbs/acre and a maximum perennial utilization of 50% of the current year's growth will be applied to allotments within listed species habitat. With these proposed measures it is unlikely that grazing will significantly impact the woolly-threads. Impacts could result to unknown populations outside of threatened and endangered species conservation areas. Once new populations are found they would be fully protected from grazing. Protection will be implemented the following year. Since grazing can damage the cryptogamic crusts at any time of the year, potential habitat may be degraded in and outside of threatened and endangered species conservation areas.

Research may find that some grazing is necessary for the continued vigor of the species. If this should be the case, not grazing the species could result in a gradual

reduction in numbers over time. It is unlikely that withholding grazing for the life of the plan would result in the extirpation of populations.

Impacts from oil and gas exploration, leasing and development, and disposal of federal lands are similar to those described for the California jewelflower.

Kern Mallow (FE/-). Kern mallow is a plant species that is restricted to the Lokern Road area. This area has been grazed primarily by sheep which tend to be stocked at higher rates than cattle and moved frequently. Sheep are also able to cut down lower on the plant than cattle. The growing season for the plant coincides with the desired sheep grazing season. It is believed that trampling impacts on Kern mallow are more significant than direct loss by grazing, although significant losses of individuals due to direct herbivory have been observed (Prendusi, 1991). The species is found most frequently in areas where a dense cryptogamic crust limits development of a dense brome sward. Cryptogamic cover and the number of cryptogamic species have been found to be reduced by grazing (Anderson, et. al., 1982). Damage to the crusts may occur year round (Brotherson, et. al., 1983). Damage to the cryptogamic crust also results from OHV use, and surface grading and scraping.

Because the known populations of Kern mallow as well as its associated threatened and endangered species conservation areas are excluded from grazing under this alternative, only undiscovered populations outside of the conservation area would be impacted from grazing. The threatened and endangered species conservation area for this species is essentially the entire known range of the Kern mallow. Once new populations are found they also would be protected from grazing. Under this alternative 2,758 acres of known and potential Kern mallow habitat will not be grazed.

Impacts from oil and gas leasing and disposal of lands are similar to those described for the California jewelflower. There are currently two oil and gas fields (Cymric and Cal Canal Gas) within a portion of the Kern mallow range. Continued infield development as described for California jewelflower may be especially significant for the Kern mallow since it has such a restricted range. It is estimated that a minimum of 180 acres and a maximum of 539 acres of potential Kern mallow habitat on Federal surface and subsurface will be removed by oil and gas development. Additionally, 4,630 acres of potential habitat on Federal surface and subsurface may be adversely modified by oil and gas development. Lokern is an area of continued oil and gas exploration. Seismic exploration results in compaction of the soil, soil erosion, crushing of individuals/populations, loss of habitat from shot holes and drilling mud that is left on the soil surface, changes in the microhabitat for the species, change in the water run-off pattern, and invasion of non-native plants. In addition, the resulting tracks may attract more OHV use.

Hoover's Woolly-star (FT/-). Of the listed species within the resource area, Hoover's woolly-star is the most widely distributed. The plant is very small and wiry and it is believed that moderate grazing is not likely to impact the species (Bartel, 1991). Hoover's woolly-star is associated with cryptogamic crusts.

Within the Carrizo Plain Natural Area, grazing would occur as described for the California jewelflower. Hoover's woolly-star is not known to occur within allotments within the CPNA. Undiscovered colonies of the species would likely not be adversely affected by grazing within the CPNA due to the pasture rotation system, mulch requirements, and limitations on stocking rates.

Hoover's woolly-star occurs in portions of five allotments of which 15,357 acres will be grazed. Four other allotments outside the CPNA fall within threatened and endangered species conservation areas for the species. These four allotments total 3,384 acres. Trampling and soil erosion directly impact Hoover's woolly-star. Grazing may indirectly impact the species by changing the overall plant community. Hoover's woolly-star appears to be associated with saltbush

habitat. Under this alternative known populations of Hoover's woolly-star will not be grazed from February 15 to May 30. Allotments within threatened and endangered species conservation areas for Hoover's woolly-star would be grazed primarily from late winter to spring. Some allotments are also grazed during the month of May. A minimum mulch level of 500 lbs/acre and a maximum perennial utilization of 50% of the current year's growth will be applied to allotments within listed species habitat. Populations in and outside of threatened and endangered species conservation areas may be impacted by grazing. It is difficult to assess the impacts of grazing Hoover's woolly-star under this alternative without more knowledge of the species.

Impacts from oil and gas exploration, leasing and development, and disposal of federal lands are similar to those described for the California jewelflower. Hoover's woolly-star has been found in stabilized areas of past disturbance where impacts no longer occur (i.e. unmaintained fire breaks, old well pads). Reclamation of abandoned wells may result in impacts to Hoover's woolly-star that have recolonized, but long-term impacts appear to be minimal.

Bakersfield Cactus (FE/CE). There are no known populations of Bakersfield cactus on Bureau owned land. If populations are acquired or discovered on public land, these populations would be excluded from grazing. Livestock will not directly consume Bakersfield cactus, but the destruction of clumps and of habitat could result from trampling and breaking. This species of cactus forms low growing clumps. The pads and clumps are easily broken. Impacts may occur to undiscovered populations. Within seven grazing allotments 2,326 acres would be grazed within the threatened and endangered species conservation areas for Bakersfield cactus. These areas would be managed with a minimum mulch level of 500 lbs/acre and a maximum perennial utilization rate of 50% of the current year's growth.

Impacts from oil and gas exploration, and leasing, and disposal of lands are similar to those described for the California jewelflower. It is estimated that a minimum of 55 acres and a maximum of 194 acres of potential Bakersfield cactus habitat on Federal surface and subsurface will be removed by oil and gas development. Additionally, 17,280 acres of potential habitat on Federal surface and subsurface may be adversely modified by oil and gas development.

Conclusion. Grazing would likely not adversely affect known populations of the species under this alternative. Potential habitat for the species may be adversely affected by grazing. Potential habitat which may be necessary for the recovery of the species may be lost due to oil and gas leasing and development, mineral development, and disposal of Federal lands. Acquisition of private lands within Carrizo, Goose Lake, and Lokern may provide additional protection to plants found on the parcels and provide important recovery habitat.

Cumulative Impacts: Federally Listed Species

The five Federally listed plant species have been variously affected and are threatened by one or more of the following: urbanization, conversion of native habitat for agriculture, oil and gas development, livestock grazing, competition from alien plants, agricultural-related water developments, and OHV use to name a few. Their habitats have been virtually extirpated and extant populations are for the most part fragmented, small and privately owned. Federal protection, conservation and recovery measures only apply to Federally authorized actions and areas of Federal jurisdiction. The cumulative impacts of continuing net loss on private lands make it imperative that utmost protection is provided on Federal lands. The cumulative impacts of past, present, and future losses of populations/habitat on private lands will significantly affect *in situ* recovery potential for the five Federally listed species.

Candidates

There are several Federal candidate species that may be affected by grazing under this alternative. The specific effects of grazing on these species is not known. Annual plants in general are affected by grazing by direct herbivory and trampling. Associated impacts include soil disturbance and erosion; introduction and increase in non-native species which compete with native vegetation for space, water, and sunlight; soil compaction which can prevent germination and stunt growth because the roots cannot grow through the hard soil; and decline in the seed bank. These effects can lead to the permanent loss of habitat for native species and the overall loss of plant diversity within grazing lands. Grazing may also benefit some species of native plants by controlling non-native species through herbivory and reducing the amount of mulch which in some instances may prohibit germination and subsequent growth. It is possible that livestock may facilitate the dispersal of some native species in rare instances by passing undigested seeds and depositing them in an area suitable for their growth. Light grazing prior to flowering may enhance the overall fitness of some plant species (Paige and Whitham, 1987).

One to two new oil and gas fields are predicted to be discovered in the Ventura basin. This area is outside of the known range of the listed plants although candidate and other sensitive species may occur here. Under this alternative there are no major constraints for leasing in areas with non-listed plants. Each new field will encompass between 1,000 and 16,000 acres resulting in the degradation and loss of native vegetation. Populations of species may be extirpated resulting in the overall decline of the species.

A total of 39,000 acres throughout the resource area shall remain available for disposal. There are 143 Federal candidates, State listed species, and species considered rare by the California Native Plant Society within the resource area. Many of these species are within areas considered for disposal. Approximately 29,250 acres are actually expected to be disposed. Approximately 10% of the acreage transferred to the private sector will be developed with roads, buildings, etc. This would result in the permanent loss of 2,925 acres of native habitat.

A total of 99,000 acres of private land were identified as potentially suitable for acquisition. Emphasis will be placed on acquisition of high resource value lands such as Carrizo, Goose Lake, Lokern area, and Wilderness Area inholdings. Acquisition of lands with sensitive plant species will benefit these species by providing additional protection.

The following are species that are known to occur on public land within the resource area and are thought to be affected by this alternative:

Annual Saltbush. Bakersfield saltbush (FC2/CE), Lost Hills saltbush (FC2/-), and heart-leaved saltbush (FC2/-) are all annual saltbush species found in alkali sinks and alkali plains. These species are threatened by conversion of habitat to agricultural fields, OHV use, drainage, and grazing. Nearly all documented populations of Bakersfield saltbush are extirpated. Almost half of the known locations of Lost Hills saltbush occur in Carrizo. A large area of habitat is removed from authorized grazing around Soda Lake. Lost Hills saltbush also occurs within an area of moderate gypsum potential. Heart-leaved saltbush is known to occur within one grazing allotment within the Carrizo Plain Natural Area. Grazing is only allowed on the CPNA between December 1 and April 1. (Grazing decisions for the CPNA do not change by alternative.) Heart-leaved saltbush blooms in the summer months so most direct impacts from grazing should be avoided. Site quality may be affected by soil compaction and disturbance. Enclosures will be constructed if monitoring studies indicate such a need. Oil and gas exploration and illegal OHV use on public land may seriously degrade habitat necessary for these species. Because the native habitat for these species is so diminished, the few BLM parcels with suitable habitat are especially important for the continuation of these species.

Grazing under this alternative should have little impact upon the annual saltbush species. Oil and gas leasing and development within the habitat for these species may lead to the further decline of the species.

Alkali Mariposa Lily (FC2/-). Alkali mariposa lily occurs in sub-alkaline sinks, flats, or meadows where there is intermittent water drainage. The species is known from the Lake Isabella area and Edwards Air Force Base. Much of its habitat has been lost to development or drained for cattle grazing. These areas no longer support the species. Alkali mariposa lily is known to occur in the Cyrus Canyon grazing allotment. The season of use for this allotment is October 1 to May 15. The species blooms usually between April and June. Observations in the field indicate that the plant is heavily grazed by livestock and deer (Prendusi, 1991). The minimum mulch level for the Cyrus Canyon allotment is 300 pounds per acre. Alkali mariposa lily may be seriously impacted by grazing in this alternative due to the presence of cattle during the plant's growing season and the low mulch level. The extent of the alkali mariposa lily population in Cyrus Canyon is not known. Alkali mariposa lily also occurs on public land near the town of Lake Isabella that has been frequently grazed without authorization. Impacts to this site can only be avoided by fencing the area. Alkali mariposa lily may occur on small parcels targeted for disposal. If disposed, these areas would likely be developed resulting in the permanent loss of fragile habitat. Adjacent to the public land parcel in Cyrus Canyon is a heavy OHV use area. OHV activity may seriously impact the alkali mariposa lily.

Kelso Creek Monkeyflower (FC1/-). Kelso Creek monkeyflower is known from Kelso Creek and Cyrus Canyon. This plant is threatened by residential development and OHV use. This monkeyflower occurs within the Kelso Peak and Airport grazing allotments. The Airport allotment is classified as annual range and is managed at 300 lbs/acre minimum mulch with no upper limit on perennial utilization. The Kelso Peak allotment is classified as a perennial allotment with 50% utilization of current year's growth and no minimum mulch requirement. Both allotments have a spring season of use which corresponds with the growth season of Kelso Creek monkeyflower. The plant may be adversely affected by trampling and associated erosion. It is unlikely that the plant is directly grazed because of its very low growth form. Disposal of parcels with potential habitat would prevent recovery of the species. Adjacent to the public land parcel in Cyrus Canyon is a heavy OHV use area. OHV activity may seriously impact the Kelso Creek monkeyflower.

Recurved Larkspur (FC2/-). Recurved larkspur is a Valley annual with habitat requirements similar to the annual saltbush species. Recurved larkspur is known to occur in the Painted Rock grazing allotment. The plant flowers between March and May and could be adversely affected by grazing at this time. Cattle have been observed eating this larkspur. Recurved larkspur is known from Goose Lake which continues as an ACEC under this alternative. A large area of habitat is permanently removed from authorized grazing around Soda Lake.

Oval-leaved Snapdragon (FC2/-). Oval-leaved snapdragon occurs along a long, narrow clay belt in the Caliente Range. Very few occurrences are known outside of this area. One population was recently reconfirmed on Bluestone Ridge. The plant may only appear in the summer following an exceptionally wet spring. The occurrence of the plant appears to be tied to the occurrence of a certain clay soil. Because the plant may not appear every year its habitat could be inadvertently impacted by oil and gas exploration and subsequent leasing and development. The known presence of this species does not constrain oil and gas leasing because candidate plants are not protected from leasing under this alternative. It is possible that 80-90% of the genetic material for the species occurs in the Caliente Range. Any loss of habitat in this area is significant. Preservation of the Bluestone Ridge population

is also important to maintain diversity within the species. Oval-leaved snapdragon may occur within 9,047 acres within grazing allotments within the CPNA. Approximately 31,280 acres would be grazed from December to the end of May or June. Approximately 8,152 acres would be grazed from July 1 to December 31, which is not compatible with oval-leaved snapdragon. All of these areas would be managed with a minimum mulch level of 500 lbs/acre. Impacts from grazing should be minimal in the allotments with a spring season of use because oval-leaved snapdragon is a summer annual. Oval-leaved snapdragon within the 8,152 acres grazed from summer through winter may be adversely affected. Field observations indicate that cattle preferentially consume this plant when present. The mulch level should help prevent erosion of the soil.

Forked Fiddleneck (FC2/-). Forked fiddleneck is an annual which blooms between March and May. The species occurs in gypsum balds with fragile soil within the Valley Management Area. This fiddleneck is hairless so it is much more palatable to livestock than other species of fiddleneck. Forked fiddleneck occurs within the Temblor-Caliente grazing allotment. Grazing on this population could result in a decline in the seed bank with the associated loss of genetic diversity. This allotment is managed at 500 pounds of mulch per acre which may reduce some of the impacts associated with grazing. This plant is also impacted by unauthorized OHV use and oil and gas development.

Hollisteria (FC2/-). Hollisteria is a prostrate woolly plant which occurs on loose, open soils in the Temblor Range, Carrizo Plain, and Kettleman Hills. The species occurs within the Temblor-Caliente grazing allotment but is probably immune to livestock consumption because of its growth habit. Livestock may crush the plant and contribute to the erosion of soils. Hollisteria is most threatened by the invasion of non-native species. Recent surveys by Bureau staff indicate that hollisteria may be much more common and abundant than originally thought.

Jared's Pepper-grass (CNPS List 4). Jared's pepper-grass is a very rare plant associated with friable clay soils within the Carrizo Plain. According to Hoover (1970), this is one of the most highly localized species in the world, found from only one location. The known habitat for the species is currently a 640 acre area in alkali clay flats around Soda Lake. Since it is so restricted, any disturbance to its habitat would be significant. This species occurs within the Painted Rock and KCL allotments. Jared's pepper-grass is present between March and June and may be severely impacted by direct herbivory and trampling. Currently the two pastures within the Painted Rock allotment north of Soda Lake are not authorized for grazing use. Jared's pepper-grass occurs within these pastures as well as other pastures that are grazed. Within the pastures not authorized for grazing, Jared's pepper-grass is threatened by trespass grazing. A few colonies are known to occur on private land. Continued acquisition around Soda Lake will benefit the species through additional protection.

Owen's Peak Lomatium (FC2/-). Owen's Peak lomatium occurs in the Walker Pass area. This species is documented from two locations on BLM. This species occurs within the Walker Pass West grazing allotment, but it is unlikely that livestock would impact the plant (Prendusi, 1991). Owen's peak lomatium occurs along the Pacific Crest Trail and may be disturbed by periodic maintenance of the trail. This alternative should have no effect on the species.

Mouse Buckwheat (FC2/-). Mouse buckwheat occurs on limestone outcrops in the Kaweah River area. This species occurs primarily within Sequoia National Park. Mouse buckwheat may occur within high potential mining areas. This plant occurs within the Oak Grove and South Comb Rocks grazing allotment. Mouse buckwheat is naturally protected from livestock because of its preferred habitat.

Piute Mountains Jewelflower (FC2/-). Piute Mountains jewelflower occupies much the same area as the Bodfish Piute Cypress grove.

This plant occurs within the Bald Eagle Peak grazing allotment. Like most species within the Crucifer family, the Piute Mountains jewelflower is quite palatable to livestock. This species flowers in late spring. The season of use for the allotment is July 1 to February 28 with a minimum mulch level of 500 pounds per acre. The season of use is compatible with Piute Mountains jewelflower and it is unlikely that grazing will directly affect the species.

Nine Mile Canyon Phacelia (FC2/-). Nine Mile Canyon phacelia occurs in Nine Mile Canyon, along the east slope of the Sierra Nevada, and in south Inyo County. The species occurs within two grazing allotments, Long Valley and Kennedy Lamont, which are classified as perennial forage allotments. The seasons of use for Long Valley and Kennedy Lamont allotments are October 1 to November 30 and July 1 to September 30, respectively. These dates are compatible with Nine Mile Canyon phacelia which flowers in May. In most years seed should be set and dispersed before livestock are turned out. It is unlikely that grazing will directly affect the species under this alternative.

Cumulative Impacts: Candidate Species

The candidate plant species have been variously affected and are threatened by one or more of the following: urbanization, conversion of native habitat for agriculture, oil and gas development, livestock grazing, competition from alien plants, agricultural-related water developments, and OHV use, to name a few. Federal protection, conservation and recovery measures only apply to Federally authorized actions and areas of Federal jurisdiction. The cumulative impacts of continuing net loss on private lands make it imperative that utmost protection is provided on Federal lands. The cumulative impacts of past, present, and future losses of populations/habitat on private lands will significantly affect *in situ* recovery potential for the candidate species.

Sensitive Plant Communities

Valley Saltbush Scrub. Within the CPNA 129,259 acres of saltbush habitat will be grazed on a pasture rotation system from December 1 to April 1. These areas would be managed with a minimum mulch level of 500 lbs/acre and would allow up to 20% utilization of the current year's growth of saltbush. Outside of the CPNA all allotments with large areas of saltbush will have a green season of use varying in duration from two to six months. These allotments total 61,857 acres and all are classified as perennial/annual forage allotments. This alternative would require that a minimum mulch level of 500 lbs/acre be maintained at all times and would allow for up to 50% utilization of the current year's growth of saltbush. In addition to allotments with large areas of saltbush, there are five other allotments totalling 5,376 acres which have small patches of saltbush. All are considered annual forage allotments but will have a maximum perennial utilization rate of 50% of the current year's growth. All have a minimum mulch level of 500 lbs/acre, but 5,182 acres may be grazed outside of the green season if forage is available. Grazing of saltbush areas during the summer and winter often results in heavy utilization of saltbush and severe mechanical damage. With utilization monitoring, severe impacts should be avoided.

During years of drought or drought recovery, due to the amount of annual precipitation, the timing of the precipitation received, and the duration of the period with below normal precipitation, mulch levels may be increased, and utilization levels on perennials may be decreased. When research, monitoring or observations indicate plant or animal stress due to existing or recent drought, grazing authorizations will be temporarily modified, and at least one season of reduced grazing will be implemented. During saltbush recruitment years, when many new seedlings are observed, temporary modifications to grazing authorizations may be implemented for a period up to one full growing season to assist in seedling establishment. Temporary

modification may include suspension of grazing for one year.

This alternative should allow for the continuation of saltbush in allotments with large areas of saltbush, but it may not enhance the recovery of saltbush in areas that have already seen a decline. Regeneration of saltbush may be enhanced by the drought recovery provisions.

Oak Woodland. Oak woodlands are primarily threatened by conversion to agriculture and urban use. Other threats include fire, grazing, wildlife predation, and air pollution. Oak woodland occurs in 35 grazing allotments. Of these, 33 are characterized as annual rangeland. In these areas the mulch guidelines apply, but the area is not monitored for perennial utilization. Thirty-one of the 33 grazing allotments managed as annual range would have a minimum mulch level greater than 500 lbs/acre with no limit on perennial utilization. These allotments total 56,958 acres. The remaining two annual allotments are managed for a minimum mulch level of 300 lbs/acre and total 2,224 acres. In most cases oak woodland does not encompass the entire allotment. There are no known valley oak woodlands or coastal oak woodlands within grazing allotments. Oak species that occur within grazing allotments include black oak, interior live oak, canyon live oak, blue oak, alvord oak, and scrub oak. Two allotments with oaks, Case Mountain and Wagy Flat, are classified as perennial/annual range and are managed at 500 lbs/acre and 400 lbs/acre minimum mulch respectively. These two allotments also have a perennial utilization rate of 50% of the current year's growth. Many of the allotments are grazed during the summer, fall, and winter or as forage is available. Approximately 10,000 acres would be grazed primarily in the spring; 480 acres would be grazed in mid winter (December 1 to January 31); 22,800 acres would be grazed from spring though summer; and 4,470 acres would be grazed from summer or fall through spring. When there is little green annual forage, perennial species including oaks are likely to be utilized by livestock. Cattle and sheep consume large quantities of acorns and oak seedlings. Heavy livestock use in fall and early winter can eliminate all oak seedlings. According to Passof et. al. (1985), livestock feed exclusively on oak leaves or twigs in fall if they are the primary "green" feed. Birds, rodents, and deer also consume large quantities of acorns and oak seedlings. Oaks have co-evolved with these species so that the production of acorns usually exceeds natural predation. The added pressure of livestock grazing can eliminate all remaining acorns and seedlings. Seedlings are vulnerable for several years. Depending on the duration of grazing, it may be possible to retain the minimum mulch level and exceed 50% utilization on perennial species. Grazing during the spring season with a minimum mulch level of 500 to 600 lbs/acre will probably not significantly impact oak regeneration. Under oaks and other woody perennials, herbaceous species may also germinate earlier where it is warmer in the winter and stay green longer into the summer where it is cooler. This may result in selective utilization of vegetation growing under oaks, resulting in compaction of the soil and damage to the tree's roots. Livestock may also break off low growing branches trying to reach the green forage or a cool place to rest. This alternative may result in the eventual decline of oak woodlands within the resource area.

Fire is necessary to reduce the fuel load within oak woodland and reduce competition. Most oaks have thin bark and almost any fire causes damage to boles or crowns (Green, 1979). A few species of oak, such as the coast live oak, are tolerant of hot fires due to their heavy thick bark. Fire may be used to improve the overall quality of the oak woodland. Prescribed fire may result in the loss of individual trees, but it benefits the continued existence of the oak woodland.

Oak woodland areas may be proposed for disposal under this alternative. The area would be analyzed according to NEPA, but the area could be disposed to acquire lands in the Carrizo Plain or Chimney Peak area. Once disposed, these areas may be developed or grazed inappropriately.

Oak woodlands are affected cumulatively by agriculture, urbanization, grazing, and air pollution, which stresses the tree and may affect acorn production (Miller et.al., 1979). Oak woodlands are desired areas for vacation and retirement homes. There is also an increased demand for oak firewood.

Valley Sink Scrub. There are approximately 3,500 acres of valley sink scrub within the resource area. Valley sink scrub formerly surrounded Kern, Buena Vista, Tulare, and Goose Lakes and north through Merced County to the gooselands of the Sacramento Valley (Holland, 1986). Valley sink scrub is practically extirpated today due to flood control, agricultural development, and ground water pumping (Holland, 1986). The physical environment is one of heavy, saline and/or alkaline clays of lake beds or playas with high ground water. The plants that live in this environment are highly specialized in order to survive the extreme conditions. Valley sink scrub is composed almost entirely of salt-tolerant species including salt grass, pickle weed, iodine bush, and several perennial and annual saltbushes. Survival of this community is dependent upon the presence of perennial surface water or shallow groundwater (Freas and Murphy, 1991). Associated with valley sink scrub are annual saltbush species and recurved larkspur.

The retention of Soda Lake and Goose Lake ACECs provides protection of this fragile community. Approximately 500 acres of valley sink scrub are not included within ACECs under this alternative. These 500 acres may be subject to trespass grazing or other illegal activity because they are part of small unfenced parcels surrounded by agriculture and range lands. These areas may also be threatened by oil and gas leasing and development.

Joshua Tree Woodland. Joshua tree woodland occurs on approximately 7,400 acres of Federal surface. Historically Joshua trees were harvested for paper pulp. Joshua trees were also chopped up for use as livestock feed (Kay et. al., 1977). Because of the deterioration of Joshua tree habitat and the potential for private enterprise to find a new use for Joshua trees, Joshua Tree National Monument was established in 1936. Joshua tree woodland occurs on sandy, loamy, or gravelly, well-drained soils on gentle alluvial slopes between an elevation of 2,500 and 5,000 feet (Kay et. al., 1977). Within the resource area, the Kern Joshua (*Yucca brevifolia* var. *herbertii*), which is a variety of Joshua tree, occurs in the Walker Pass and upper South Fork (Kern) Valley areas. The more common Joshua tree (*Y. brevifolia*) occurs at the east base of the Tehachapi Mountains (Twisselmann, 1967). Joshua trees are protected by the California Desert Native Plants Act which protects them from unlawful harvesting on public and privately owned lands. Joshua tree woodland is threatened by development within the South Fork Valley, lowering of the water table, and sand and gravel mining.

In the Lake Isabella area there are 9,000 acres of public land with high and moderate potential for sand and gravel mining. It is estimated that 140 acres of Joshua tree woodland and desert scrub will be eliminated by mining activities.

Approximately 190 acres of possible Joshua tree woodland are targeted for disposal under this alternative.

Joshua tree woodland is known to occur in four grazing allotments totalling 17,745 acres. Three of these allotments totalling 15,115 acres are annual forage allotments with a minimum mulch level of 300 lbs/acre. These allotments have primarily a green season of use, but one allotment of 3,000 acres has a season of use ending October 14. The fourth allotment which totals 2,630 acres is classified as a perennial forage allotment and has a green season of use. It is unlikely that livestock will directly graze Joshua trees, but livestock mechanically damage the trees by rubbing against them. Mechanical damage may increase in areas grazed during the non-green season because livestock may selectively graze forage produced in the shade

of Joshua trees where vegetation may stay greener longer. Grazing may increase erosion which may expose the roots of Joshua trees, threatening the stability of the plant.

Giant Sequoia Forest. There are several groves of giant sequoias totalling about 40 acres on public land at Case Mountain. There are over 280 giant sequoias with a diameter at breast height of greater than 80 inches at Case Mountain (BLM, 1984). Giant sequoias occur in isolated groves along a narrow 150-mile stretch of the central Sierra Nevada (Holland, 1986). In the late 1800s and early 1900s many groves were completely logged even though the wood is extremely brittle and has a low tensile strength. Logging began in 1856 and continued intermittently until the mid-1950s. Because of this brittleness approximately 75% of a fallen tree was left on the forest floor. The wood that was salvaged, was used to make fence posts, shingles, and pencils. The debris left behind contributed to a heavy fuel load resulting in immense fires, which killed even the largest of the trees (Hartesveldt et. al., 1975). Giant sequoias are dependent upon periodic fires of the appropriate frequency and intensity for the establishment of seedlings and survival of the species. Mature trees are resistant to fire due to their thick, fibrous, tannin-filled bark (Holland, 1986). Individual trees may live more than 3,000 years and most of the old giants bear scars from past fires. It is estimated that loggers cut approximately 34% of the original giant sequoia acreage (Hartesveldt et. al., 1975). Many of the remaining groves appear to be static or shrinking slowly over time. Eventually these groves will probably disappear possibly as a result of climatic warming and drying (Hartesveldt et. al., 1975). John Muir as cited in Hartesveldt et. al. (1975), estimated that less than one seed in a million germinates and less than one seedling in 10,000 grows to maturity.

Access to Case Mountain is currently limited. This alternative proposes to acquire access to Case Mountain if made available. Increased visitation due to acquired access may adversely affect the giant sequoia groves due to compaction of the soil and erosion of soil from the trees' roots. Giant sequoia roots are very shallow but wide-spreading. Studies of the impact of human visitation within groves revealed that soils were severely compacted in areas of high human foot traffic (Hartesveldt et. al., 1975). Compaction greatly reduced water infiltration and water collected on the soil surface. This water created drainage channel ways which then became gullies exposing roots to a depth of one foot or more in some places. This threatens the stability of trees although there are no records of any tree dying as a result of soil compaction (Hartesveldt et. al., 1975). Compaction also eliminates competition from other plants including giant sequoia seedlings.

Giant sequoias occur within a small portion of the Case Mountain grazing allotment which is classified as a perennial/annual forage allotment. This allotment would be grazed as forage is available with a minimum mulch of 500 lbs/acre. Livestock may trample upon or rub against seedlings or young trees. Livestock also contribute to the compaction of soils. It is unlikely that cattle directly consume giant sequoia seedlings.

Water Resources

No adverse impacts are expected under a continuation of present management. Some exceptions to this trend are a result of random incidents with fire or hazardous materials. The state of present watershed conditions warrants special management, i.e.grazing mgmt. etc., due primarily to the preceding five year drought situation. Barring high order flood events, particularly during the post drought revegetation period, impacts to water quality are expected to be nominal.

Water quality management objectives have been established for individual water basins by each Regional Water Quality Control Board under authority of the Federal and State Water Quality Acts. The main potential for water pollution from public lands is from nonpoint sources, which are discussed in Section 208 of the Federal Water Pollution Control Act and the State's Nonpoint Source Program. The 208 plan for public lands in California established guidelines for identification of Best

Management Practices (BMPs). The BMPs would be developed in coordination with the responsible regional board.

Such factors as range condition, slope, hydrologic condition, and erosion potential can be used to predict impact to nonpoint pollution. The probability of occurrence and degree of impact are correlative to the frequency and magnitude of a given hydrologic event. For example: the probability of one and only one event equal to or exceeding a 50 year storm in any one year is 2% (BLM Technote 337). Strategies to safeguard/restore watersheds, such as seasonal grazing restrictions, mulch level maintenance, and riparian protection, minimize impact potential. Risk of occurrence will diminish as watershed conditions improve. This is correlated to implementation of the management strategies mentioned above and more importantly, the return of normal precipitation to the area. Under projections of foreseeable use for continued management, impacts to water quality would be minimal.

The disposal of lands would have the effect of removing certain watersheds or portions of watersheds from the protection of the Federal government. Continuation of present management provides for the disposal of up to 40,000 acres of land. Poor or mismanagement of these disposed lands could result in excessive amounts of soluble salts and/or transportable soil sediments being introduced into surface and/or ground water systems. However, under proper management, little or no change could be expected.

The retention or acquisition of other lands allows for management and prescriptions to be imposed to protect and safeguard against soil loss, and thus prevent nonpoint sources of pollutants from entering surface and ground water systems. Under prescribed management and implementation of BMPs, such as seasonal grazing or maintenance of mulch levels, nonpoint pollution can be minimized.

Additional effects of livestock grazing on water quality can include impacts to riparian zones, i.e., trampling and consumption of vegetation. This could result in water temperature increases and stream bank instability. Temperature changes in some instances may be allowable but in other instances the resulting changes to riparian flora and fauna may be unacceptable. The concentration of livestock in and around water sources also results in introduction of fecal material into the water, and the array of accompanying organisms such as fungi, algae, viruses, protozoa, bacteria, etc. However, riparian protection measures are prescribed where primary riparian zones are concerned.

Under present continuing management, livestock grazing will decline, primarily due to the constraints of threatened and endangered habitat protection. On this basis and the implementation of improved grazing management strategy, the impacts to water quality are expected to be minimal.

Spraying projects for range pest control or vegetation manipulation often result in improperly releasing pesticides or herbicides into streams and water sources directly. Aerial spraying is one of the major causes of these types of impacts. If stringent compliance standards are enforced, such impacts are expected to be minimal.

Mining for fluid or solid mineral resources can affect both surface and ground water sources. Areas of particular concern are where activity is near live or ephemeral drainages and where groundwater sources are near the surface. Enforcement of the Porter/Cologne Act minimizes this hazard. Also, the fact that there is very little water other than storm runoff in the vicinity of present mining activity, makes it unlikely that an exploration or production operation will affect a surface water source. Further, standard BLM practices minimize associated impacts. State codes for oil and gas and mining prohibit the use of unlined sumps where there is any potential to impact groundwater. Leak detection systems are required for unlined pits in other situations.

The probability for groundwater contamination is minimal if Federal and State regulations are complied with. Associated compliance safeguards include well casing requirements, subsurface disposal of wastes, spill contingency plans and well abandonment procedures.

Present management of riparian zones will continue to benefit water both in quality and quantity. Several rivers and streams are under study for Wild and Scenic River status. Twenty-four riparian monitoring stations are located on tributaries of the Kern River system upstream of Lake Isabella, which is an identified water quality problem by the State of California. Six riparian projects are in place and inspected periodically. An additional two riparian projects are planned under present continued management.

Improvement of both water quality and quantity can be expected under continuing present management of riparian zones.

Recreation impacts to water quality are associated with OHV activity. Resource damage associated with OHV activity includes surface, rilling and gulling types of erosion contributing to nonpoint source pollution. OHV use in desert areas is not a major impact on water resources, since erosion in these areas does not enter live streams or affect water resources. Present continued management does not call for designated OHV areas where resource damage could be minimized and mitigated. As a result, OHV activity is dispersed, and damage is unquantified and unmitigated. Unchecked, impacts to water quality in the south Sierra Management Area, where the majority of perennial streams are located, could be significant. In the remainder of the resource area, where recreation impacts are intense, ephemeral streams are more common then perennial streams and thus impacts to water quality would be uncommon.

Recreation activities have the potential to affect water quality in a wide variety of other ways. The broad spectrum of recreational uses occurring on public lands in the Caliente Resource Area accounts for this. The predominant cause of most recreational use impacts on water quality are over utilization, or concentration of users in a specific area. Recreational activities often occur near or are associated with water resources; the water attracts recreational use to the area and often recreation use involves the water resource. The major water quality parameters most often affected by recreation are sediment, turbidity and bacteria content. Improperly maintained or located sanitary facilities are often the cause of water quality impairments. Overall, the cumulative impact is not significant, although localized problems may occur.

Wild and prescribed fires can have dramatic effects on vegetation, soils and hydrology. The destruction of vegetation and soil properties by fire often causes changes in the hydrologic properties of watersheds. Surface runoff, and consequently erosion, usually increase immediately after fire due to reduced surface water retention and subsequent rainfall. In the past, suppression and presuppression activities had a greater impact on water quality than the fire itself. However, present management calls for sound engineering principles and post fire site mitigation and restoration.

Conclusion. Barring unforeseen major fire events and high order hydrologic events, overall water quality impacts due to Bureau management and operations are expected to be minimal. However, a nonpoint pollution source threat exists on all watersheds, in the form of excess sediment production. This is due to the current drought (in its sixth year at the time this analysis was prepared). Aforementioned controls and mitigation measures, proposed to restore grazing lands, would minimize potential impacts. Impacts from grazing and riparian management are expected to improve and thus minimize impacts to water resources. Regulations imposed on mining minimize impacts. Air regulations will have the indirect effect of curtailing impacts to water due to OHVs because of the requirements that will regulate and stabilize OHV use areas.

Cumulative Impacts

Cumulative effects to water resources under continuing management practices will be minimal. Long range predictions are even more optimistic. With the acquisition and management of riparian zones, the dedication of some rivers as Wild &/or Scenic Rivers, and the stabilization of watersheds (grazed and ungrazed), water quality and quantity are expected to improve.

Wildlife

Impacts to wildlife resources can occur either to habitat or to animals themselves.

Changes in habitat can positively or negatively affect animals. Changes in vegetation, such as species composition, vegetative structure, quantity, quality, and age structure can affect animals. Changes in vegetation can alter food supplies, the availability of shelter and the structures used by animals for cover or to obtain food. Vegetation changes can also modify the associated animal species that may interact with a particular animal species. These associated animals include species that act as predators, prey, or cavity and burrow excavators.

Habitat size can be reduced and become too small to be used by certain animal species, or it can be enlarged to become of use to the species. For some species, habitat can be too large, in that not all areas are utilized. Deer, for example, may not use all portions of a large open meadow if some portions are too far from brush or woodland cover.

Shape of habitat can alter the relationship between foraging areas and cover. For example, all portions of a large open meadow that is irregularly shaped, where fingers of wooded cover jut into the meadow, may be used by deer. The shape of the meadow allows all portions of the meadow to be close enough to brush or woodland cover.

Animals can be affected by a change in the juxtaposition of food and cover. If a foraging area is removed, the unaltered cover area may not be used by a species. Conversely, the addition of a nearby foraging area may make usable the previously unused cover area.

Animals can be affected by fragmentation of habitat. Barriers, such as roads or pipelines, can hamper animal movement from one part of an area to another. If barriers hamper animal movement significantly, fragmentation can essentially result in reducing habitat size and availability.

Human activity and human associated activity can affect how animals use an area. Human activity may displace some species from an area. Activities associated with humans, such as pets and vehicles, also displace some species from the activity area.

Changes in non-living features, such and water, air, soil and topography can affect animals. The availability and quality of water can modify how animals use an area or the survival of an animal. Air quality may affect the vegetation that wildlife depend on for food or shelter. Changes in soil, such as compaction or loosening of the soil can alter the suitability of an area for burrowing animals, and may affect vegetation. Modification of topography can alter visibility, or remove or create topographic features used for cover or perches. Addition of chemical materials to an area, such as pesticide application or accidental spills of hazardous materials, can affect the health of animals or food supplies. Pesticides may reduce insects used as food by animals, or may affect the health of an animal. Predatory animals may also ingest contaminated prey. Spills of oil can entrap animals, and predatory animals may ingest oil by consuming entrapped prey species.

Introducing animal species into an area can affect prior animal inhabitants of an area. Introduced animals, whether exotic or native, may compete with established native animals for food and shelter or modify habitat in a manner that affects existing native animals.

Habitat can be removed and replaced with a structure or a human use area. Areas occupied by buildings, parking areas, roads, storage areas and cropland are unsuitable as habitat for many species. Habitat can also be created from abandoned use areas through human initiated rehabilitation or natural revegetation.

Modification to an animal's environment can cause animals to be less efficient. Animals may have to travel farther to obtain food, spend more attention on avoiding predators, or redig burrows that have been collapsed. If efficiency is sufficiently affected, animals may be reproductively affected. Reproduction may be delayed, reduced or abandoned by affected animals.

Animals can be directly harmed, injured or even killed. Direct collisions with vehicles or equipment can result in injury or even mortality to animals. Domestic animals may transfer diseases to wild animals. Animals may ingest hazardous materials, become entangled in wire or entrapped in trenches, leading to starvation and increased vulnerability to predation. Harvest of animals, through legal and illegal hunting, also results in injury and death.

Federally Listed Species

Blunt-nosed Leopard Lizard (FE/CE). The decline of the blunt-nosed leopard lizard is attributed to habitat loss, primarily through cultivation of lands in the San Joaquin Valley (USFWS, 1985). Livestock grazing and mineral development also influence a significant portion of the species' range (USFWS, 1985).

Livestock grazing may be detrimental if it results in soil compaction, damage to rodent burrows used by lizards for cover, and loss of vegetation used by lizards and their prey species for cover. Certain levels of grazing may benefit leopard lizards by preventing shrub and grass cover from becoming too dense (USFWS, 1985). Dense shrub and grass cover may hamper lizard movements, making them more vulnerable to predation as well as less efficient at foraging (Tollestrup, 1989).

Under this alternative, approximately 221,091 acres of potential blunt-nosed leopard lizard habitat will be grazed by livestock.

On 129,419 acres within the Carrizo Plain Natural Area, livestock grazing in blunt-nosed leopard lizard habitat will be managed to maintain >500 pounds of mulch per acre during the grazing season and <20% utilization on perennial species. The grazing season would be restricted to December 1 to April 1. Approximately 39,000 acres, including 26,080 acres of public land, have also been placed in pastures which will not be grazed. These ungrazed pastures will serve as control pastures for evaluating the effects of the grazing prescription. Moderate grazing leaves an average of 2 inches of unused plant matter, and the residual dry matter ranges from 400 to 700 pounds per acre (Clawson et al., 1982). This results in a patchy appearance, with little bare soil (Clawson et al., 1982). Based on this description, a mulch level of 500 pounds is not expected to hamper lizard movements. Grazing saltbush scrub only from December 1 to April 1, and not exceeding 20% utilization on perennial species, is expected to provide sufficient cover for lizards and prey species.

On 91,672 acres outside the Carrizo Plain Natural Area, livestock grazing within potential blunt-nosed leopard lizard habitat will be managed to maintain >500 pounds of mulch per acre during the grazing season and <50% utilization on perennial species, including saltbush. Areas of saltbush scrub would be grazed only from December 1 to May 31. Approximately 56,897 acres of potential blunt-nosed leopard lizard habitat is within saltbush scrub. During years of drought or drought recovery, due to the amount of annual precipitation, the timing of the precipitation received, and the duration of the period with below normal precipitation, mulch levels may be increased, and utilization levels on perennial species may be decreased. When research, monitoring or observations indicate plant or animal stress due to existing or recent drought, grazing authorizations will be

temporarily modified, and at least one season of reduced grazing will be implemented. During saltbush recruitment years, when many new seedlings are observed, temporary modifications to grazing authorizations may be implemented for a period up to one full growing season to assist in seedling establishment. Temporary modification may include suspension of grazing for one year. Grazing saltbush scrub only from December 1 to May 31, and not exceeding 50% utilization on perennial species is expected to provide sufficient cover for lizards and prey species. Temporary modifications during saltbush recruitment years, including suspension of grazing for one growing season, is expected to promote saltbush regeneration.

On 5,376 acres, small patches of saltbush would be grazed not to exceed 50% utilization. These areas may be grazed outside the green season. The primary forage available outside the green season would be dry forage, saltbush and other perennial species. If available, livestock will usually select green forage over dry forage or browse. Under woody perennials, where it is warmer in the winter, herbaceous species may germinate earlier. During the late spring and summer, when it is moister and cooler under woody species, herbaceous species may stay greener longer. This may result in selective utilization of vegetation growing under saltbush, resulting in compaction of the soil and severe mechanical damage to saltbush.

Grazing will be discontinued on approximately 3,272 acres of blunt-nosed leopard lizard habitat. Light grazing leaves an average of 3 inches or more of unused plant matter, and the residual dry matter is more than an average of 800 pounds per acre (Clawson et al., 1982). This results in little or no patchy appearance (Clawson et al., 1982). Bartolome et al. (1980) indicated that site production in the Kettleman Hills and Temblor Range for a given year may be well below 1,120 kg/ha or 996 pounds per acre. In dry years at the San Joaquin Experimental Range, with precipitation between 12 and 16 inches, Bentley and Talbot (1951), found herbage production between 1,200 and 1,500 pounds per acre. It is estimated that mulch levels in ungrazed areas within blunt-nosed leopard lizard habitat will typically not range above 900 to 1000 pounds per acre. Residual mulch levels that typically do not exceed 900 to 1000 pounds and result in an average of 3 inches of unused plant matter, may impede lizard movement, but are not expected to have a significant effect. Survivorship in open areas, where lizards can move easily but have little cover, and survivorship in less open areas, where lizards may have impeded movement but more concealment cover, may be about the same (Dave Germano, 1991).

Oil and gas development may result in loss of habitat from road and pipeline construction, placement of drilling pads and sumps, contouring of surface profiles and other surface modifications (USFWS, 1985). Habitat quality can also be affected by oil and gas development. Roads and pipelines can fragment habitat, and construction activities can damage vegetation or destroy burrows. Lizards may become entrapped in oil from spills or leaks, collapsed burrows (EG&G, 1986), trenches, sumps, and vertical pipe segments that are open at ground level. Lizards are also crushed by moving vehicles and equipment. Under this alternative, it is estimated that a minimum of 1,300 acres and a maximum of 3,970 acres of potential blunt-nosed leopard lizard habitat on Federal surface and subsurface will be removed by oil and gas development. Additionally, 66,780 acres of potential habitat on Federal surface and subsurface may be adversely modified by oil and gas development. A continuation of mineral development activities within and around existing oilfields may result in a reduction of lizard numbers in these areas. Over the long term, individual lizard populations may disappear from areas of mineral development. Cumulatively, the eventual disappearance of these populations may hamper recovery of the species, since these populations may be important for maintaining genetic diversity and geographic variety.

Under this alternative, oil and gas leases within listed species habitat will be issued with a special Conditional Surface Use stipulation. This Conditional Surface Use stipulation precludes any surface disturbing activities from commencing until certain provisions have been met. One of these provisions is to conduct an inventory for listed species in and around the Surface Use Plan of Operation area. If the inventory indicates that neither listed species or their habitats are present, the Conditional Surface Use stipulation will be waived and surface disturbing activities may be authorized.

If the inventories indicate that listed species are present, surface activities may be allowed if implementation of mitigation measures could reduce impacts to an acceptable level. If impacts cannot be reduced to an acceptable level, surface activities may continue to be prohibited on portions or all of the lease. The acceptable level of impact will take into consideration listed species objectives for the area, requirements for contributing to a recovery program for the species and the requirement to avoid jeopardy to the species. One new major oil field is expected to be discovered on public land, and public land may be included in other new oilfields. Development on public land resulting from issuing leases may include wildcat wells, roads and portable tanks. Many of these developments will not be retained and if rehabilitated, will produce short term effects. Where rehabilitation is not performed or the site has been altered significantly, habitat loss will be long term. Under this alternative, it is estimated that a minimum of 24 acres and a maximum of 1,520 acres, with 160 acres as the likely amount, of potential listed species habitat on Federal surface and subsurface may be adversely affected by eventual development, due to fragmentation and an increased exposure to hazards. Between 2 acres and 90 acres, with 7 acres as the likely amount, of potential listed species habitat on Federal surface and subsurface is expected to be removed by such development. Leased areas which include listed species habitat, are likely to be relatively undisturbed and of high habitat quality.

With the use of this Conditional Surface Use stipulation, although the amount of acreage eventually developed would be the same, the areas of development are expected to avoid areas of importance to listed species. In addition, residual impacts are expected to be compatible with recovery programs, as well as avoiding species jeopardy. The Conditional Surface Use stipulation would also allow for the preclusion of all surface disturbing activity from the entire lease, should this be required to meet listed species objectives for the area. Retention of the option to preclude all development is necessary, since these leases will be issued without the benefit of site specific inventories or the benefit of completed recovery plans. Decisions to close certain parcels of lands to leasing in this RMP have considered site specific inventories and completed inventories, where available.

Mineral extraction, including gypsum, diatomaceous (siliceous) shale, oil shale, and sand and gravel is expected to continue on 1,040 acres of listed species habitat. New development may include between 490 acres and 900 acres of listed species habitat. These activities are often related to oil and gas development and are within or adjacent to existing oilfields. Two large diatomaceous shale mines covering 1000 acres occur in marginal blunt-nosed leopard lizard habitat.

Within listed species habitat, approximately 14,000 acres will be available for potential disposal. Of these acres it is expected that 75% or 10,500 acres will actually be disposed. Each parcel would be analyzed as required by NEPA. Under this alternative, parcels supporting significant resources, including listed species habitat, will only be exchanged for parcels supporting similar resources of equal or greater quality. It is estimated that 10% of the acreage transferred out of Federal ownership will be developed with roads and structures. This would result in the loss of 1,050 acres of potential listed species habitat. Development reduces the quality of adjacent undeveloped habitat through fragmentation and other indirect impacts. Once development has commenced in an area, further development of adjacent natural lands is likely.

Spraying of malathion for control of beet leafhoppers may adversely affect blunt-nosed leopard lizards and their prey (USFWS, 1991). Measures to minimize adverse effects have been specified in a March 1991 Environmental Assessment (California Department of food and Agriculture, 1991) and a September 9, 1991 Biological Opinion (USFWS, 1991). In 1987 and 1988, approximately 2,010 acres and 5,388 acres respectively of Federal land in the San Joaquin Valley were sprayed with malathion.

Continued ACEC designation for the Elkhorn Plain, San Andreas, and Chico Martinez, and management of the Carrizo Plain Natural Area will contribute to securing lands important in the recovery of the species. Acquisition of lands important to recovery by the California Department of Fish and Game and the Nature Conservancy will also contribute to securing lands important in the recovery of the species. These positive actions may reduce the likelihood that the continued existence of the species will be jeopardized in the short term. These actions, however, are not expected to be sufficient to lead to the downlisting of the species in the long term, and may not be sufficient to prevent the species from jeopardy in the long term.

Conclusion. Grazing at a moderate level, and discontinuation of grazing is expected to be compatible with blunt-nosed leopard lizard habitat requirements. Continued development and operation of existing oil and gas fields may result in the eventual loss of some blunt-nosed leopard lizard populations in these areas, and negatively affect recovery of blunt-nosed leopard lizards. Issuing leases for oil and gas development may remove and reduce the quality of listed species habitat. Non-oil and gas mineral extraction may contribute to the loss of some lizard populations within and adjacent to existing oilfields. Spraying of malathion may have adverse effects to lizards and lizard prey species. Parcels supporting listed species habitat may be exchanged for parcels supporting similar resources. Continued designation of three ACEC's and management of the Carrizo Plain Natural Area is expected to benefit the species.

California Condor (FE/CE). The recent rapid decline in wild condor numbers may be attributed to factors causing mortality (USFWS, 1984). Reproduction may have also been adversely affected during of periods of DDT use due to eggshell thinning. Condors have no natural enemies and mortalities are primarily attributed to shooting, lead poisoning and collisions (USFWS, 1984). To a lesser extent, poisoning by DDT, cyanide, strychnine, and compound 1080; fouling by oil sumps; and disease may also contribute to mortalities (USFWS, 1984).

Condors were released into the wild in October 1991. The area used by wild condors is likely to encompass the same area utilized by the experimental population of Andean condors. Andean condors in the experimental release group ranged from San Marcos Pass and Cachuma Lake in the west and toward Figueroa Mountain to the northwest (USFWS, 1990). This use area is composed primarily of lands within the boundary of Los Padres National Forest. Use of areas adjacent to existing oilfields, such as Hopper Mountain, may be discouraged to reduce exposure to hazards associated with oilfields. The limited amounts of public land adjacent to the projected use area may be subject to land disposal or continued oil and gas development. Released condors may also use public land in the Carrizo Plain Natural Area and public lands within the boundaries of Bittercreek National Wildlife Refuge for foraging. It is unlikely that released condors will use the Blue Ridge area in the short term.

Under this alternative all designated critical condor habitat, 4,140 acres, will be retained. Potential disposal of essential condor habitat will be considered only after Formal Consultation with the USFWS. Public land adjacent to the Andean condor use area near Hopper Mountain may be disposed. Continued ACEC designation for Blue Ridge, Elkhorn Plain, and San Andreas, and management of the Carrizo Plain Natural Area

will partially offset the potential negative impacts of land disposals.

Effects to condors from oil and gas development include potential for above ground collisions, taming, and exposure to oil spills (Nichols, 1988). Condors are known to have collided with vertical pipe and overhead powerlines. Young birds may also be more susceptible to collisions, and young birds tend to be used in release programs. Taming of birds increases the risk of exposure to human made hazards. Although naturally exposed oil seeps occur in the Sespe area, there is an increased potential for exposure to oil spills. Under this alternative, approximately 1,490 acres of Federal land will continue to be developed for oil and gas near Hopper Mountain. Plans to discourage condor use of oilfields and adjacent areas will reduce the potential for negative effects to released condors.

Conclusion. Critical condor habitat will be retained. Some essential condor habitat and lands near Hopper Mountain may be disposed. Continued oil and gas development at Sespe may have negative impacts to the condor release program. Continued designation for three ACEC's and management of the Carrizo Plain Natural Area is expected to benefit the species.

Giant Kangaroo Rat (FE/CE). Conversion of prime habitat to cropland is the main factor attributed to the decline of the giant kangaroo rat (50 FR 32585; USFWS, 1985a; Williams 1979). Urbanization, oil and gas development, and rodent control programs have also contributed to the species decline (50 FR 32585). Much of the area currently occupied is considered marginal and no prime habitat remains (50 FR 32585; Williams, 1979). Significant portions of the species' range contains petroleum deposits and is heavily developed, and other areas have been mined for gypsum and other materials (Williams, 1979).

Substantial populations of giant kangaroo rats are thought to occur only in four locations: the Elkhorn Plain, Carrizo Plain, Cuyama Valley and upper Buena Vista Valley (Williams, 1979). The upper Buena Vista Valley population is thought to be severely depressed and may even be extirpated (Germano, 1991). Other populations are small and widely scattered.

Livestock grazing may adversely affect giant kangaroo rats through a reduction of food supplies (USFWS, 1989). On the Elkhorn Plain, cattle concentrated their foraging on giant kangaroo rat precincts and also consumed giant kangaroo rat seed caches (Williams, 1989). Livestock trampling can damage kangaroo rat burrows (Williams, 1979; USFWS, 1989). Williams (1991) indicates that kangaroo rats are constantly reworking their burrows, and an occasional collapse due to livestock trampling would be corrected with normal burrow maintenance. Inspections of giant kangaroo rat precincts in the Carrizo Plain during early 1990 found very few small mammal burrows that appeared to be damaged by livestock trampling (BLM, 1990). The long term effects of grazing on giant kangaroo rats is unknown. In the Elkhorn Plain, Williams et al. (1990) found lower densities of giant kangaroo rats on grazed plots, and reduced numbers of young kangaroo rats and reduced longevity of young kangaroo rats in grazed plots.

Under this alternative, approximately 218,947 acres of potential giant kangaroo rat habitat will be grazed. Approximately 129,419 of these acres are within the Carrizo Plain Natural Area. Grazing in giant kangaroo rat habitat will be similar to that described for blunt-nosed leopard lizards. Within the Carrizo Plain Natural Area 129,419 acres will not be grazed from April 1 to June 15. In addition, approximately 12,294 acres known to be occupied by giant kangaroo rats and 10,311 acres of potential habitat outside the Carrizo Plain Natural Area will not be grazed from April 1 to June 15. Approximately 79,217 acres of potential habitat will be grazed during April 1 to June 15. The moderate level of grazing proposed in this alternative is not expected to reduce kangaroo rat food supplies. Not grazing from April 1 to June 15 will prevent seed caches from being consumed or damaged by livestock.

ACEC's Expected to Significantly Benefit Wildlife or Wildlife Habitat					
ACEC's	Federally Listed Species	Special Status Species	High Economic or Recreation Value Species	Aquatic, Wetland or Riparian Habitat	Significant Populations
California Rocks & Islands				X	
Pt. Sal				X	X
Chico Martinez	X	X			X
Elkhorn Plain	X	X			X
Goose Lake	X				
San Andreas Fault Scarp	X	X			X
Soda Lake	X	X			X
Blue Ridge	X		X		X

Table 26

Grazing will be discontinued on approximately 3,432 acres of giant kangaroo rat habitat. Descriptions of giant kangaroo rat habitat generally indicate the lack of shrubs. Williams, (1979) however, indicates that it is unlikely that giant kangaroo rats avoid areas because of shrubs. Rather the shrubs are found on soils of coarser texture, including edges of arroyos, upper bajadas, and steeper slopes; and on level ground with high water tables and alkaline soils of fine loams, silts and clays (Williams, 1979). Such areas, due to soil texture, slope or soil moisture may be unsuitable for giant kangaroo rats. The increase in shrub cover, and the expected mulch levels in ungrazed areas, is expected to be compatible with giant kangaroo rat habitat requirements.

Giant kangaroo rat precincts are generally not found in heavily developed oilfields, but can occur adjacent to such areas. Precincts tend to occur in undisturbed areas or in areas of low development. Activities that traverse these lands, such as pipelines, roads, and geophysical exploration, affect giant kangaroo rats. Under this alternative, it is estimated that between 1,200 acres and 3,600 acres of potential giant kangaroo rat habitat on Federal surface and subsurface will be removed by oil and gas development and 45,880 acres of Federal surface and subsurface will be adversely modified. The continuation of these activities, combined with oil field expansions, may contribute to the loss of some small scattered kangaroo rat populations in the Buena Vista Valley.

Impacts from disposal and leasing of oil and gas are similar to those described for the blunt-nosed leopard lizard.

Continued ACEC designation for the Elkhorn Plain, San Andreas, Soda Lake and Chico Martinez, and management of the Carrizo Plain Natural Area will contribute to securing lands important in the recovery of the species. Acquisition of lands important to recovery by the California Department of Fish and Game and the Nature Conservancy will also contribute to securing lands important in the recovery of the species. These positive actions may reduce the likelihood that the continued existence of the species will be jeopardized in the short term. These actions, however, are not expected to be sufficient to lead to the downlisting of the species in the long term, and may not be sufficient to prevent the species from jeopardy in the long term.

Conclusion. Grazing at a moderate level and discontinuation of grazing is expected to be compatible with giant kangaroo rat habitat requirements. Continued development and

operation of existing oil and gas fields may contribute to the eventual loss of some giant kangaroo rat populations in the Buena Vista area. Issuing leases for oil and gas development may remove and reduce the quality of listed species habitat. Parcels supporting listed species habitat may be exchanged for parcels supporting similar resources. Continued designation of four ACEC's and management of the Carrizo Plain Natural Area are expected to benefit the species.

Tipton Kangaroo Rat (FE/CE). The decline of the Tipton kangaroo rat is attributed primarily to habitat loss from conversion of native scrub and grasslands to agriculture (USFWS, 1987; 52 FR 26041; Williams, 1985). Human activities that continue to affect the species include agriculture, construction of evaporation ponds, urban development, oil field development, application of pesticides and heavy sheep grazing (USFWS, 1987; 52 FR 26041; Williams, 1985; Germano, 1991). Because most of the remaining populations are small and surrounded by agriculture, they are extremely vulnerable to extirpation by predation, inbreeding, flooding or disease (52 FR 26041; Williams, 1985).

Tipton kangaroo rats are currently distributed in areas grazed and ungrazed by livestock (Williams, 1985). Light or moderate grazing may benefit Tipton kangaroo rats by preventing dense vegetation from interfering with locomotion and visibility (Williams, 1985). Areas of heavy grazing can support Tipton kangaroo rats at densities similar to less heavily grazed areas (Williams, 1985), although the long term effects of heavy grazing are unknown.

Under this alternative, grazing will be discontinued on approximately 1,000 acres of potential Tipton kangaroo rat habitat. A closely related subspecies, the Fresno kangaroo rat, appears to have disappeared from some areas where grazing has been eliminated (Dave Germano, 1991). It is unknown how discontinuation of grazing will affect Tipton kangaroo rats.

Approximately 12,140 acres of potential Tipton kangaroo rat habitat will be grazed. Grazing in Tipton kangaroo rat habitat will be similar to that described for blunt-nosed leopard lizards outside the Carrizo Plain Natural Area. The proposed level of grazing is expected to be compatible with Tipton kangaroo rat habitat requirements.

Tipton kangaroo rat precincts are generally not found in heavily developed oilfields, but can occur adjacent to such areas. Precincts tend to occur in undisturbed areas or in areas of low development. Activities that traverse these lands, such as pipelines, roads, and geophysical exploration, affect Tipton kangaroo rats. Under this alternative, it is estimated that between 50 acres and 200 acres of potential Tipton kangaroo rat habitat on Federal surface and subsurface will be removed by oil and gas development and 8,640 acres on Federal surface and subsurface will be adversely modified. The continuation of these activities, combined with oil field expansions, may contribute to the loss of some small scattered kangaroo rat populations in the Buena Vista Valley.

Impacts from leasing of oil and gas are similar to those described for the blunt-nosed leopard lizard.

Unauthorized activities, such as disposal of refuse (including hazardous materials), disking, construction of ditches, installation of pipelines, and cross-country vehicle travel are known to occur on many parcels of public land with a high potential to support Tipton kangaroo rats. These parcels are usually small, surrounded by agriculture and have boundaries that are not clearly defined by fences or signs. Under this alternative, unauthorized uses are expected to continue and may further degrade the species' habitat. Approximately 180 acres with potential to support Tipton kangaroo rats are identified for potential disposal. Disposal of these lands, if they support the species or have potential to be used as a threatened and endangered species conservation area, may negatively affect recovery efforts.

Nearly all the land supporting Tipton kangaroo rats is in private ownership (Williams, 1985). In 1985, approximately 6,430 acres of local, State or Federal land, divided among five parcels, supported kangaroo rat populations that were relatively secure from cultivation or flooding (Williams, 1985). None of the areas on local, State or Federal land are thought to be large enough to support long term populations (Williams, 1985). Continued ACEC designation for Goose Lake may provide habitat condition that will benefit the species. Acquisition of lands by the Nature Conservancy in the Lokern area may partially offset impacts to this species.

Conclusion. Grazing at a moderate level is expected to be compatible with the species. It is unknown how discontinuation of grazing will affect Tipton kangaroo rats. Continued development and operation of existing oil and gas fields may contribute to the eventual loss of some Tipton kangaroo rat populations in the Buena Vista Valley. Issuing leases for oil and gas development may remove and reduce the quality of listed species habitat. The disposal of habitat and the lack of actions to promote recovery, such as habitat acquisition, may negatively affect recovery of the species in the long term. Continued designation of one ACEC (Goose Lake) may benefit the species.

San Joaquin Kit Fox (FE/CT). Habitat loss, due to agricultural, industrial and urban development, is thought to be the primary reason for the decline of the kit fox (O'Farrell, 1983; USFWS, 1988). Habitat loss continues to be the greatest threat to the species survival (O'Farrell, 1983; USFWS, 1988). Degradation of habitat and mortality may also significantly influence species survival.

Activities associated with oil and gas development are thought to affect kit fox (USFWS, 1988) through habitat loss, habitat degradation and increased mortality (USFWS, 1988). Structures and use areas, such as roads, well pads, tank settings, pipelines and sumps remove habitat. Maintenance and safety practices, such as the removal of all vegetation and cleaning lease areas by scraping the soil surface, also remove habitat. Increased noise, ground vibrations, venting of noxious gasses, and release of petroleum products can degrade habitat (USFWS, 1988). Mortality to kit fox from oil field related activities are limited to collisions with vehicles, entrapment in dens, entrapment in pipelines, and entrapment in well cellars (Berry et al., 1987; USFWS, 1988; O'Farrell, 1983). It is unclear if kit fox experience higher rates of mortality in heavily developed oilfields. Berry et. al. (1987) found no significant difference between mortality in developed areas and undeveloped areas. Their definition of developed areas, however, may have included areas that range from heavily developed to moderately developed. Although not resulting in immediate mortality, ingestion of oil by consuming oil covered prey or grooming of oil covered body parts, may also occur as a result of oil leaks or spills. Kit fox can coexist with moderate levels of development (O'Farrell et al., 1980; USFWS, 1988), but extensive oil development may not be compatible with the maintenance of kit fox populations (O'Farrell et al., 1980). Under this alternative, it is estimated that between 1,320 acres and 4,040 acres of potential habitat on Federal surface and subsurface will be removed by oil and gas development and 69,220 acres on Federal surface and subsurface will be adversely modified. Most oil related activity will occur within or adjacent to existing oilfields. It is likely that some fields that are currently considered moderately developed will become heavily developed, and not be suitable for kit fox. Progression to heavily developed oilfields may eliminate kit fox from certain areas. In other areas, fields may be abandoned. In such areas, kit fox are likely to re-invade disturbed areas.

The effects of oil and gas leasing are similar to those described for the blunt-nosed leopard lizard.

Grazing may affect kit fox by reducing food for prey species or modifying the habitat of prey species. Major prey species for the kit fox include kangaroo rats, black-tailed jackrabbits and desert cottontails. In areas of heavy

grazing, lowered densities of prey species can be expected (O'Farrell et al., 1980; O'Farrell and McCue, 1981). In some areas, moderate grazing may even promote habitat for prey species and allow for kit fox range extensions (USFWS, 1988).

Under this alternative, approximately 237,651 acres of potential kit fox habitat will be grazed. Of these acres, approximately 129,419 acres are within the Carrizo Plain Natural Area. Grazing in kit fox habitat will be similar to that described for blunt-nosed leopard lizard habitat and is expected to be compatible with kit fox and kit fox prey species habitat requirements.

On 5,376 acres, small patches of saltbush would be managed not to exceed 50% utilization. These areas may be grazed outside the green season. The effects of grazing outside the green season are similar to those described for the blunt-nosed leopard lizard.

Grazing will be discontinued on approximately 3,272 acres of kit fox habitat. Discontinuation of grazing is expected to be compatible with kit fox and kit fox prey species habitat requirements.

Impacts from disposal are similar to those described for the blunt-nosed leopard lizard.

Establishment of threatened and endangered species conservation areas, through acquisition of lands and management of existing lands is a key factor in the eventual recovery of this species (USFWS, 1988). Continued ACEC designation for Elkhorn Plain, San Andreas, Chico Martinez and Soda Lake, and management of the Carrizo Plain Natural Area will contribute to the establishment of threatened and endangered species conservation areas. The change in grazing prescription, together with continued management of the Elkhorn Plain ACEC and the Carrizo Plain Natural Area, will partially offset the impacts of other activities on public lands. Acquisition of lands important to recovery by the California Department of Fish and Game and the Nature Conservancy will also partly offset impacts to this species. These positive actions will reduce the likelihood that the continued existence of the species will be jeopardized in the short term. These actions, however, are not expected to be sufficient to lead to the downlisting of the species in the long term, and may not be sufficient to prevent the species from jeopardy in the long term.

Conclusion. Grazing at a moderate level and discontinuation of grazing are expected to be compatible with San Joaquin kit fox and kit fox prey species habitat requirements. Progression from low and moderately developed oilfields to heavily developed oilfields may eliminate kit fox from certain areas. Issuing leases for oil and gas development may remove and reduce the quality of listed species habitat. Parcels supporting listed species habitat may be exchanged for parcels supporting similar resources. Continued designation of four ACEC's and management of the Carrizo Plain Natural Area are expected to benefit the species.

Kern Primrose Sphinx Moth (FE/-). Human activity, through introduction of non-native plants, land use practices that result in habitat loss, and collection, are the primary factors attributed for the decline of the Kern primrose sphinx moth (USFWS, 1984a; 45 FR 24088; Steinhart, 1990). Female moths consistently deposit eggs on filaree (*Erodium cicutarium*), a naturalized exotic plant (USFWS, 1984a; 45 FR 24088). Larvae hatched from eggs deposited on filaree do not feed and die of starvation after a few days (USFWS, 1984a). Evening primrose (*Camissonia contorta epilobiodes*), the food plant for the moth, occurs in sandy soil along washes and in fallow fields (USFWS, 1984a). Land use practices, such as frequent plowing and channeling of washes may destroy habitat for the evening primrose (USFWS, 1984a). Grazed sites within the moth's range typically have high densities of filaree (USFWS, 1984a). Evening primrose is not common in grazed areas, but may be present in scattered dense colonies (USFWS, 1984a). Due to the restricted size of the moth colony, and

because females fly slower than males, collection has affected population numbers. The rarity of the species makes it highly desirable to sphingid moth collectors (45 FR 24088). The restricted size of the colony makes it easy to collect more than one specimen. Most of the moths taken are females, which may be particularly detrimental to the reproductive success of the moth (45 FR 24088).

Although the proportion of forbs to grasses in a given area for a particular year is dependent primarily on the timing and amount of rains (George et al., 1984), mulch levels can affect species composition (Bartolome et al., 1980). Low amounts of mulch encourage higher proportions of certain forbs including filaree (George et al., 1984). High amounts of mulch encourage grasses (George et al., 1984). Under this alternative, 13,207 acres of potential Kern primrose sphinx moth habitat will be grazed. Grazing in potential sphinx moth habitat will be similar to that described for blunt-nosed leopard lizard habitat outside the Carrizo Plain Natural Area. The proposed mulch level of 500 pounds per acre is probably considered to be moderate (George et al., 1984; Clawson et al., 1982) and would not be expected to favor filaree. Heavy grazing over long periods causes an increase in low growing plants (Clawson et al., 1982). Filaree may be considered tolerant of high levels of grazing because of its ability to adopt a low growth habit. The proposed grazing mulch levels may reduce the amount of filaree within the moth's range and provide areas for use in recovery.

Approximately 10,240 acres of potential habitat for the moth is identified for possible disposal. Should these lands be disposed, land uses incompatible with the sphinx moth and sphinx moth habitat may ensue. Disposal of land in the moth's range, if the parcel supports evening primrose or contains sandy areas where evening primrose could be established, may reduce the area available for use in a recovery program. Most of the land within the moth's range is in private ownership. Loss of Federally protected land, where a recovery program could be carried out, may significantly hamper recovery efforts.

In 1990, one female moth was observed at the main colony, the first one seen in the past 4 to 5 years (USFWS, 1990). Between 1980 and 1984 no moths were observed (USFWS, 1984a). Poor weather, normal population fluctuations, factors such as a short flight season (USFWS, 1984a), combined with extremely low population numbers, may account for the limited sightings. Because of extremely low numbers, the reliance of the species on a host plant with a limited distribution within the moth's current range, and the behavior of ovipositing on a non-food plant, filaree, it is uncertain whether the species will continue to exist in the long term.

Conclusion. The proposed grazing program may promote recovery by not favoring filaree. Disposal of land in the Walker Basin may reduce the amount of Federally protected land available for use in a recovery program.

Cumulative Impacts: Federally Listed Species

Most of the habitat historically inhabited by listed species has been lost due to the conversion of native lands for agriculture, urban development, energy and mineral extraction and other uses. A significant portion of the remaining habitat is fragmented and of low quality. The remaining habitat continues to be adversely altered by agriculture, urban development, energy and mineral activities and other uses.

The current strategy for recovery of listed species is to secure large contiguous blocks of habitat to support core populations. In addition, lands connecting the large core areas would be managed to support scattered populations and to serve as corridors between the core areas. Rehabilitation of disturbed lands may also be necessary to provide sufficient habitat to support populations that will remain stable in perpetuity.

Agencies and organizations, such as the California Department of Fish and Game and the Nature Conservancy, have begun to secure some of the core lands identified as important for recovery. Several local planning efforts which are focused on reducing the impacts of urbanization and industrialization on listed species are also underway. These positive actions may reduce the likelihood that the continued existence of these species will be jeopardized in the short term. These actions, however, are not expected to be sufficient to lead to the downlisting of these species in the long term, and may not be sufficient to prevent the species from jeopardy in the long term.

Under this alternative, Bureau actions, may contribute toward reducing the likelihood that these species will become extinct in the short-term. Bureau actions, however, are not expected to make a significant contribution to species recovery or preventing the species from jeopardy in the long term.

Special Status Species

San Joaquin Antelope Squirrel (FC2/CT). Like most of the listed species found in the San Joaquin Valley, habitat loss, through conversion to agriculture, is responsible for the decline of the San Joaquin antelope squirrel (Williams, 1979; Harris and Stearns, 1990). Loss or degradation of habitat, due to agricultural, urban, and oil and gas development, along with the use of rodenticide, hampers recovery of the species (Williams, 1979; Harris and Stearns, 1990; Schlorff, 1979; CDF&G, 1980). Heavy grazing may also be adversely affecting the species (CDF&G, 1989; Harris and Stearns, 1990).

Grazing may affect antelope squirrels by reducing shrub cover and food supplies. Favored sites for burrows are under shrubs or in the banks of arroyos (Williams, 1979). Livestock grazing can damage or destroy shrubs. On the Elkhorn Plain, Harris and Stearns (1990), found high densities of antelope squirrels in areas lacking shrub cover. Both of these areas, however, had high densities of giant kangaroo rat burrows that were shared by antelope squirrels. Harris and Stearns (1990) suggested that the presence of other burrowing rodents compensated in some way for the lack of shrubs. Other areas on the Elkhorn Plain which lacked both shrubs and giant kangaroo rats, appeared to have fewer antelope squirrels. Areas which had been heavily grazed, generally lacked antelope squirrels altogether. Hawbecker (1953) also found few animals in areas without shrubs. Those that were found were not breeding. Antelope squirrels are omnivorous, eating many types of plants and animals (Hawbecker, 1947; Williams, 1979). Principal food includes filaree (*Erodium cicutarium*) and red brome, and insects are important from May through October (Williams, 1979; Hawbecker, 1947). In areas of heavy grazing, food resources may be insufficient to support antelope squirrels or their insect prey.

Under this alternative, approximately 227,937 acres of antelope squirrel habitat will be grazed. Of these acres, approximately 129,419 acres are within the Carrizo Plain Natural Area. Grazing within antelope squirrel habitat will be similar to that described for blunt-nosed leopard lizard habitat and is expected to be compatible with antelope squirrel habitat requirements.

Grazing will be discontinued on approximately 3,272 acres of antelope squirrel habitat. Discontinuation of grazing is expected to be compatible with antelope squirrel habitat requirements.

Antelope squirrels also place their burrows in banks along road cuts for roads and similar structures (Williams, 1979). Under this alternative, maintenance of roads, especially in the Elkhorn Plain where burrows are frequently located in road banks, may adversely affect the species.

Continued ACEC designation for the Elkhorn Plain, San Andreas, Soda Lake and Chico Martinez, and management of the Carrizo Plain Natural Area will contribute to securing lands important to the species. The change in grazing prescription, together with continued management of the Elkhorn Plain ACEC and

the Carrizo Plain Natural Area, will partially offset the impacts of other activities on public lands. These positive actions will reduce the likelihood that the species will need to be Federally listed in the short term.

Conclusion. Grazing at a moderate level and discontinuation of grazing is expected to be compatible with San Joaquin antelope squirrel habitat requirements. Maintenance of dirt roads, especially in the Elkhorn Plain may adversely affect the species. Continued designation of four ACEC's and management of the Carrizo Plain Natural Area is expected to benefit the species.

Mojave Ground Squirrel (FC2/CT). Loss of habitat, habitat fragmentation and subsequent isolation of populations has adversely affected Mojave ground squirrel populations (CDFG, 1989). Although range maps restrict the Mojave ground squirrel to the Mojave desert, Mojave ground squirrels were observed in the Kelso Valley in 1990. Approximately 25,140 acres of Joshua tree woodland and desert scrub habitat on public land in the Kelso Valley, Canebrake, Weldon and Onyx areas have potential to support Mojave ground squirrels. Suitable habitat on private land is of high value for urban development.

Under this alternative, approximately 740 acres of potential Mojave ground squirrel habitat may be disposed.

Heavy grazing may adversely affect Mojave ground squirrels (CDFG, 1989). Under this alternative, approximately 46,250 acres of potential Mojave ground squirrel habitat will be grazed. Approximately 29,053 acres will be managed to maintain >300 pounds of mulch. Utilization on perennial species will be managed to maintain <50% utilization on 25,029 acres. Approximately 17,300 acres will be managed with no maximum utilization level on perennial species. Joshua tree woodland, which has the highest potential to support Mojave ground squirrels, will be grazed not to exceed 50% utilization on perennial species. Grazing in these areas is expected to be compatible with Mojave ground squirrel habitat requirements. Although 300 pounds of mulch alone may not be compatible with ground squirrel habitat requirements, these areas have a low potential to support the species and grazing may not significantly affect the species in these areas.

Approximately 9,000 acres within potential Mojave ground squirrel habitat have a moderate to high potential for sand and gravel and fill material. Approximately 140 acres of potential Mojave ground squirrel habitat may be removed by sand and gravel, and fill excavation.

Conclusion. Grazing at a moderate level is expected to be compatible with Mojave ground squirrel habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with ground squirrel habitat requirements. Land disposals and mineral extraction activities may adversely affect the species.

Short-nosed Kangaroo Rat (FC2/-). The decline of the short-nosed kangaroo rat is attributed primarily to habitat loss through cultivation (Williams, 1986). Much of the area inhabited by short-nosed kangaroo rats is in private ownership and has moderate to good potential for cultivation (Williams, 1986). Heavy livestock grazing, especially in the Carrizo and Elkhorn Plains, may also have detrimentally affected the species (Williams, 1986). Light to moderate grazing may enhance habitat for short-nosed kangaroo rats by preventing dense vegetation from interfering with locomotion and visibility.

Under this alternative, 218,822 acres of potential short-nosed kangaroo rat habitat will be grazed. Of these acres, approximately 129,419 acres are within the Carrizo Plain Natural Area. Grazing in short-nosed kangaroo rat habitat will be similar to that described for blunt-nosed leopard lizard habitat, and is expected to be compatible with kangaroo rat habitat requirements.

Grazing will be discontinued on approximately 3,272 acres of short-nosed kangaroo rat habitat. A closely related subspecies, the Fresno kangaroo rat, appears to have disappeared from some areas where grazing has been eliminated (Dave Germano, 1991). It is unknown how discontinuation of grazing will affect the short-nosed kangaroo rat.

Management of the Carrizo Plain Natural Area and continuation of the Elkhorn, San Andreas, Chico Martinez and Soda Lake ACECs will contribute to securing lands important to the species. Acquisition of lands by the Nature Conservancy in the Lokern area may benefit the species.

Conclusion. Grazing at a moderate level is expected to be compatible with short-nosed kangaroo rat habitat requirements. It is unknown what effect discontinuation of grazing will have on short-nosed kangaroo rats. Continued designation of four ACEC's and management of the Carrizo Plain Natural Area is expected to benefit the species.

Mountain Plover (FC2/CSC). Mountain plovers nest primarily in short-grass prairies, from southeastern Alberta and southwestern Saskatchewan south along the east side of the Rocky Mountains through Montana, Wyoming, Colorado, New Mexico and Texas (Leachman and Osmundson, 1990). During winter the plovers frequent plowed fields and relatively flat grasslands or barrens in California's Central Valley, the south coast from San Luis Obispo south and the Imperial Valley (Leachman and Osmundson, 1990) Formerly, the species wintered from California east to the Texan gulf coast and south into northern Mexico (AOU, 1983). It is estimated that 90% of the birds currently winter in California's Central Valley (Knopf, 1991). Mountain plover populations are estimated to number around 5,000 birds, with up to 1,000 having been observed in the Carrizo Plain, Elkhorn Plain and east flank of the Temblor range. Mountain plovers have also been observed in the Kettleman Hills and in burned areas in the Lokern area.

Reasons for decline of the species are not well understood. Although the amount of suitable breeding habitat has declined, the decline in plover numbers exceeds that which can be attributed solely to the reduction in breeding habitat. Conversion of native lands to agriculture may have influenced plover use of migration and wintering habitat. Mountain plovers are dry land birds that prefer open, flat terrain, and have been known to use plowed fields. It is unknown whether plovers select plowed fields over native lands. Contamination by pesticides is currently being investigated as a side effect of plover use of agricultural lands. The susceptibility of plovers to certain contaminants, such as selenium, is also being investigated. Although plovers are not especially sensitive to human activity, they apparently do not use fragmented habitat such as oilfields or urban areas.

Under this alternative approximately 182,639 acres of potential plover habitat will be grazed. Of these acres, 120,261 acres are within the Carrizo Plain Natural Area. Grazing in plover habitat will be similar to that described for blunt-nosed leopard lizard habitat and is expected to be compatible with mountain plover habitat requirements.

Grazing will be discontinued on approximately 3,552 acres of potential plover habitat. Discontinuation of grazing is expected to be compatible with plover habitat requirements for most years. During a prolonged series of wet, high mulch years, discontinuation of grazing may not be compatible with plover habitat requirements.

Management of the Carrizo Plain Natural Area and continuation of the Elkhorn Plain, San Andreas, Chico Martinez ACEC is expected to provide habitat conditions that will benefit the species.

Conclusion. Grazing at a moderate level is expected to be compatible with mountain plover habitat requirements. Discontinuation of grazing is expected to be compatible with plover habitat requirements for most years. Discontinuation of grazing during a prolonged series of wet, high mulch years may not be

compatible with plover habitat requirements. Continued designation of three ACEC's and management of the Carrizo Plain Natural Area is expected to benefit the species.

LeConte's Thrasher (-/CSC). Habitat loss due to agricultural, urban and mineral development, and habitat conversion due to grazing and fires, are attributed for the decline of the LeConte's thrasher. Thrashers depend on saltbush for foraging and nesting. Saltbush is easily damaged by fire and large expanses are often left shrubless after a fire. It may take 5 to 10 years in drainage areas, and over 20 years on flats, for saltbush to become re-established in burned areas. Thrashers forage at the bases of saltbush where there is sufficient accumulation of leaves, flowers, seed and duff to provide abundant invertebrate habitat. Protection from predators, primarily mammalian, is an important factor in selecting nest sites. Nests are less susceptible to predation when they are placed in shrubs with dense branching from ground up, in less dense but tall (over 3 feet) shrubs, or in shrubs over-hanging a cut bank. Densely branched shrubs provide the best combination of nest and foraging sites. Thrashers spend a considerable amount of time on the ground, often walking from shrub to shrub as they forage. Dense, tall ground cover can hamper thrasher movement.

Under this alternative, approximately 249,504 acres of potential thrasher habitat will be grazed by livestock. On 94,973 acres within the Carrizo Plain Natural Area, livestock grazing will be similar to that described for blunt-nosed leopard lizard habitat within the Carrizo Plain Natural Area.

Outside the Carrizo Plain Natural Area, grazing on 75,942 acres of potential thrasher habitat will be similar to that described for blunt-nosed leopard lizard habitat outside the Carrizo Plain Natural Area. Mulch levels are expected to promote sufficient amounts of invertebrates and be compatible with thrasher ground movement. Grazing only during the cool season when herbaceous material is abundant is expected to prevent both mechanical damage and heavy utilization to mature saltbush. A maximum utilization level of 50% on perennial species is also expected to prevent heavy utilization on mature saltbush. Temporary modifications during saltbush recruitment years, including suspension of grazing for one growing season, is expected to promote saltbush regeneration.

Outside the Carrizo Plain Natural Area, grazing on 61,393 acres will be managed to maintain >300 pounds of mulch.

Outside the Carrizo Plain Natural Area, 67,205 acres of non-saltbush scrub will be managed with <50% utilization on perennial species. Approximately 11,384 acres of non-saltbush scrub will be managed with no maximum utilization level.

On 1,996 acres, small patches of saltbush would be grazed not to exceed 50% utilization. These areas may be grazed outside the green season. The effects of grazing outside the green season are similar to those described for the blunt-nosed leopard lizard.

Grazing will be discontinued on 3,112 acres of potential thrasher habitat. Discontinuation of grazing is expected to be compatible with thrasher habitat requirements.

Continued oil and gas development may result in some loss of thrasher habitat. In addition to habitat loss due to wells, roads, tank settings and other similar facilities, inadvertent fires related to oil field activities may also cause the loss of thrasher habitat. It is expected that light to moderate well densities are compatible with thrasher habitat requirements. Progression to heavily developed oilfields may eliminate thrashers from certain areas.

The effects of oil and gas leasing are similar to those described for blunt-nosed leopard lizards.

Continued ACEC designation for San Andreas, Elkhorn and Chico Martinez and management of the Carrizo Plain Natural Area is expected to

provide habitat conditions that will benefit the species.

Conclusion. Grazing at a moderate level and discontinuation of grazing is expected to be compatible with LeConte's thrasher habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with thrasher habitat requirements. Continued development and operation of existing oil and gas fields and issuing of leases for oil and gas development may result in the loss of some thrasher habitat. Continued designation of three ACEC's and management of the Carrizo Plain Natural Area is expected to benefit the species.

Cumulative Impacts: Special Status Species

Most of the habitat historically inhabited by special status species has been lost due to the conversion of native lands for agriculture, urban development, energy and mineral extraction and other uses. A significant portion of the remaining habitat is fragmented and of low quality. The remaining habitat continues to be adversely altered by agriculture, urban development, energy and mineral activities and other uses.

For many of these species, management concentration on conserving these species is limited to lands managed by resource agencies and organizations such as the California Department of Fish and Game, and The Nature Conservancy. Efforts underway to reduce impacts to Federally listed species may also benefit certain Special Status Species. These positive actions may reduce the likelihood that these species will become Federally listed in the short term. These actions, however, are not expected to be sufficient to prevent these species from becoming Federally listed in the long term.

Under this alternative, Bureau actions, may slightly contribute toward reducing the likelihood that some of these species will become Federally listed in the short-term. Bureau actions, however, are not expected to make a significant contribution to preventing most of the species from becoming Federally listed in the long term.

High Economic or Recreation Value Species

Although the Monache deer herd has been in an overall upward trend, the Long Valley segment has remained depressed. Reasons for the continued decline of the Long Valley segment may include: increased mountain lion numbers in the Long Valley wintering area, reduced fawning cover on the summer range, lack of forage along migratory corridors and development in Kennedy Meadows (Consoli and Reser, 1989). Recent inspections of the Long Valley area indicated low levels of bitterbrush utilization. A recent livestock water development, however, is expected to increase livestock use of the area.

Under this alternative, approximately 103,820 acres within the Monache Deer Herd Range will be grazed by livestock. Approximately 9,840 acres will be managed to maintain >300 pounds of mulch per acre. Approximately 93,990 acres will be managed not to exceed 50% utilization on perennial species. On 79,710 acres, the livestock grazing season ends after the end of the growing season. Migratory deer typically utilize this area from late November through early March, after the growing season has ended and before the next growing season has begun. If by the end of the livestock grazing season, the level of utilization is near 50%, additional browsing by deer may exceed the 50% utilization level. Over utilization of browse species may degrade the range in the long term. On 14,280 acres, the livestock grazing season ends before the end of the growing season. In these areas, plant growth could continue after livestock utilization has ceased and it is less likely that additional browsing by deer would exceed 50% utilization. Approximately 9,840 acres will be managed with no maximum utilization level.

Approximately 44 square miles (28,160 acres) of public land provides important habitat for the Kaweah deer herd, primarily in the Oak Flat, Milk Ranch Peak and Case Mountain areas (Walker, 1984). Under this alternative,

approximately 17,830 acres within the Kaweah Deer Herd Range will be grazed by livestock. Approximately 5,650 acres will be managed to maintain >600 pounds of mulch and 12,170 acres to maintain >500 pounds. Approximately 5,653 acres would be managed to not exceed 50% utilization on perennial species, and 12,714 acres will be managed with no maximum utilization level.

Approximately 17,600 acres within livestock grazing allotments support Blue Oak Woodlands, which provides an important mast source for deer (Passof et. al., 1985). Grazing in summer, fall and early winter can be detrimental to oak regeneration (Passof et al., 1985). Approximately 2,030 acres containing oaks will be grazed not to exceed 50% utilization on perennial species including oaks, and 15,570 acres will be managed with no maximum utilization level on perennial species. Approximately 17,520 acres of Blue Oak Woodland could be grazed in the summer, fall or early winter.

Resident deer, and other resident game species, such as quail and chukar, are primarily affected by the condition of food and cover on public lands. Under this alternative, food and cover is most likely to be affected by livestock grazing. Resident game species habitat is found on most public lands in the Sierras and Sierra Foothills, Coast Managed Area and the Temblor and Caliente Mountain Ranges. Within these areas, approximately 386,486 acres will be grazed by livestock. On 99,373 acres within the Carrizo Plain Natural Area grazing will be similar to that described for blunt-nosed leopard lizard habitat within the Carrizo Plain Natural Area. On 107,280 acres within the Walker Pass CRMP Area, grazing will be similar to that described for the Monache Deer Herd. On 188,758 acres, grazing will be similar to that described for blunt-nosed leopard lizard habitat outside the Carrizo Plain Natural Area.

Of the remaining 89,289 acres, 48,122 acres will be managed to maintain >500 pounds of mulch, 10,750 acres >400 pounds, 2,654 acres >350 pounds, and 25,137 acres >300 pounds. Approximately 53,315 acres will be managed not to exceed 50% utilization on perennial species, and 35,974 will be managed with no maximum utilization level. Although perennial species may not be an important livestock forage component in these areas, perennial species are important as food and cover for wildlife species. In such areas, although perennial species may not be a significant livestock forage component, those perennial species that are in the area are likely to be utilized by livestock.

Continued designation of Blue Ridge ACEC and the Monache-Walker Pass, Temblor and Caliente National Cooperative Land and Wildlife Management Areas is expected to provide habitat conditions that will benefit migratory and resident game species.

Conclusion. Livestock grazing at a moderate level is expected to be compatible with game species habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with game species habitat requirements. Continued designation of three National Cooperative Land and Wildlife Management Areas and one ACEC is expected to benefit the species.

Cumulative Impacts: High Economic or Recreation Value Species

Compared to historic population levels, numbers of game species have been reduced due primarily to a reduction in habitat. Habitat reduction has resulted from urban development, agriculture, recreation activity, livestock grazing and other uses. Urban development, recreational activities and livestock grazing continue to adversely affect game species habitat.

For many game species, significant amounts of the remaining habitat is managed by resource agencies such as the National Park Service and the Forest Service. Compared to other categories of wildlife, there exists a substantial body of knowledge regarding

species biology and techniques for managing these species. The combination of this knowledge, with the high amount of habitat managed by resource agencies, suggests that minimum populations of these species will be maintained in the short term and perhaps even the long term.

Under this alternative, Bureau actions may slightly contribute toward meeting the habitat requirements to maintain sufficient populations of game species.

Aquatic, Wetland or Riparian Habitat

Within California, it is estimated that less that 2% of the riparian habitat extant in 1800 remains today (Dillinger, 1989; Abell, 1989). Activities that may adversely affect riparian habitat include livestock grazing, mining, irrigation, flood control, timber harvesting, recreation, road construction, drainage, agriculture and urbanization (American Fisheries Society, 1980; Buer et al., 1989; Thomas et al., 1979; Thomas et al., 1979a). Inventories of 712 riparian areas in the Caliente Resource Area suggest that livestock grazing and diversions are the main factors contributing to some riparian areas being in only fair or poor condition. Disposal of riparian areas out of Federal ownership can also adversely affect riparian resources.

Heavy livestock grazing and trampling affect riparian habitats by reducing or eliminating riparian vegetation, changing stream bank and channel morphology, and increasing stream sedimentation transport (Clary and Webster, 1990). Often there is an associated lowering of the surrounding water table (Clary and Webster, 1990; Platts, 1986). Riparian vegetation not only provides food and cover for wildlife, but stabilizes and maintains streambanks and encourages sediment trapping to maintain or rebuild streambanks. Vegetative cover and biomass is especially important in providing streambank protection during high stream flows and flash floods. Recommended minimum herbage stubble heights are to maintain 4-6 inches at the end of the growing season (Clary and Webster, 1990). Season of use is also an important factor. Spring grazing is advantageous since there is similarity in vegetation succulence between riparian and upland areas, cooler temperatures encourage animal mobility and in some cases livestock avoid streamside areas that are wet in the spring (Clary and Webster, 1989; Clary and Webster, 1990). Spring grazing, followed by complete livestock removal allows riparian plants to regrow before the fall dormant period (Clary and Webster, 1990). Fall grazing may be acceptable if use levels are carefully controlled to leave protective vegetative cover to accommodate high water during winter rains (Clary and Webster, 1990). Grazing riparian areas in the summer is discouraged because of the strong tendency for cattle to concentrate along stream courses during the hot dry months (Clary and Webster, 1990). To maintain minimum stubble heights of 4-6 inches, the recommended maximum utilization ranges from 65% for spring grazing, 50% for summer grazing and 30-40% for fall grazing (Clary and Webster, 1990).

Approximately 105 riparian reaches, covering 58.9 miles and 17 allotments, have been inventoried. It is estimated that the 58.9 miles of inventoried reaches comprises two-thirds of the total linear riparian habitat on public lands in the Caliente Resource Area. The effects of grazing on these 58.9 miles of inventoried riparian reaches may be indicative of the effects of grazing to all riparian reaches on public lands. Under this alternative for 2.7 miles of inventoried reach, grazing will be confined to the green season. Approximately 56.2 miles of inventoried reach will be grazed outside the green season, with 5.4 miles grazed at any time during the year. Approximately 50.5 miles of inventoried reach will be grazed not to exceed 50% utilization on perennial species. Approximately 10 miles of inventoried reach will be grazed with no maximum utilization level on perennial species.

Approximately 607 springs in 32 allotments have been inventoried. It is estimated that the 607 inventoried springs comprise two-thirds of the total number of springs on public lands in the Caliente Resource Area. The effects of grazing on these 607 inventoried springs may

be indicative of the effects of grazing to all springs on public lands. Under this alternative, for 47 inventoried springs, grazing will be confined to the green season. Approximately 560 springs will be grazed outside the green season, with 108 springs grazed at any time during the year. One inventoried spring, within the Carrizo Plain Natural area, will be grazed not to exceed 20% utilization on perennial species. Approximately 468 inventoried springs will be grazed not to exceed 50% utilization on perennial species and 138 inventoried springs with no maximum utilization level on perennial species.

Grazing outside the green season is similar to fall and summer grazing and may lead to degradation of riparian resources. Exceeding 50% utilization on perennial species may also lead to degradation of riparian areas. Over the long term, grazing outside the green season and exceeding 50% utilization of perennial species may degrade riparian areas to the point where impacts, if correctable, are expensive and difficult to overcome.

Grazing only during the green season is similar to spring grazing, and depending on the stocking density and utilization level of perennial species, may be compatible with maintaining or improving riparian areas to a good or excellent condition. Not exceeding 50% utilization of perennial species may maintain the recommended minimum stubble heights. Maintenance of minimum stubble heights is expected to promote plant vigor, provide protective vegetative cover during high flow periods, help stabilize streambanks and encourage sediment trapping.

Under this alternative, 8 parcels covering 720 acres, with potential riparian resources may be disposed.

Under this alternative, continuation of the Soda Lake, Pt. Sal, and Rocks and Islands ACEC's will positively affect the alkali pond and intertidal habitat found on these parcels.

Conclusion. Livestock grazing may adversely affect riparian resources on some allotments. Riparian habitat may be present on some parcels identified for potential disposal. Continued designation of three ACEC's and management of the Carrizo Plain Natural Area is expected to benefit riparian, alkali pond and intertidal habitat.

Overgrazing riparian systems can lead to stream de-stabilization to various extents. These impacts, if correctable, are expensive and difficult to overcome.

Cumulative Impacts: Aquatic, Wetland or Riparian Habitats

Within the west water resources have historically been limited. Ongoing and new water diversions and drainage of wetlands continue to reduce the amount of aquatic, wetland and riparian habitat. Other activities, including livestock grazing and recreation reduce the quality of the remaining habitat. With only 2% of the riparian habitat extant in the year 1800 remaining, even small reductions in riparian habitat or riparian habitat quality are significant.

Under this alternative, certain Bureau actions, such as land disposals and livestock grazing, may contribute toward the reduction in overall quantity and quality of riparian habitats.

Significant Populations

Raptors. Public land provides significant raptor nesting habitat in the Caliente Mountain, Case Mountain and Chimney Peak areas. Under this alternative, raptor nesting habitat is not expected to be significantly affected. Public land provides significant wintering habitat in the Carrizo Plain and Kettleman Hills. The quality of wintering habitat on public lands is most affected by the abundance of foraging areas and prey species. Under this alternative, wintering habitat is not expected to be significantly affected. California spotted owls have been documented in the Case Mountain area. Only six California spotted owls have been documented as occurring on Bureau lands in California; three of these were at Case Mountain. Under this alternative,

spotted owl habitat at Case Mountain is not expected to be affected. As mentioned under the Federally Listed Species section, public land in the Blue Ridge area is designated as Critical Habitat for the California condor.

Continued ACEC designation for San Andreas, Elkhorn, Soda Lake, Chico Martinez and Blue Ridge and management of the Carrizo Plain Natural Area is expected to provide habitat conditions that will benefit raptors.

Conclusion. Suitable habitat conditions will continue to be provided on public lands. Continued designation of five ACEC's and management of the Carrizo Plain Natural Area is expected to benefit raptor species.

Neotropical Migrants. Long term observations suggest that populations of many species of birds that nest in North America and winter in Mexico, the Caribbean and Central and South America are declining (National Fish and Wildlife Foundation, 1990). Recent declines followed a period of stability or in some cases an increase in abundance (National Fish and Wildlife Foundation, 1990). Two primary factors are thought to explain these declines: fragmentation of breeding habitat in the U.S. and Canada, and loss of wintering habitat in Mexico, the Caribbean and Central and South America. The most rare of the species utilize riparian areas. Other species, which are common now, may become more rare in the future due to continued loss of winter habitat and fragmentation of breeding habitat. Although many of the species likely to use public land are tolerant of habitat fragmentation, the typical land use pattern surrounding and sometimes on public land may be the maximum fragmentation these species can tolerate. Bureau land is thought to be commonly used by 18 species during migration and 12 species for nesting (Appendix B-2). Most of these species are heavily dependent (100%-75%) on tropical areas for wintering habitat. The 18 species which utilize public land during migration may be affected by changes in vegetative structure made possible by the proposed grazing prescription. No other significant short term effects are expected. There are, however, no actions proposed that would contribute significantly to long term stability of these species.

Continued ACEC designation for Pt. Sal and Blue Ridge is expected to provide habitat conditions that will benefit neotropical migrants.

Conclusion. Livestock grazing and disposal may affect riparian resources used by some neotropical migrants. Continued designation of two ACEC's is expected to benefit neotropical species.

Cumulative Impacts: Significant Populations

Many raptor and neotropical migrant populations are showing significant declines. Reductions of habitat quantity and quality are thought to be the major causes for these population declines. To help reverse these trends, agencies and private organizations have cooperatively developed programs, such as the Neotropical Migratory Bird Program Population.

Under this alternative, some Bureau actions may adversely affect riparian areas used by neotropical migrants. Due to the extremely limited amount of remaining riparian habitat, and the high dependence of some neotropical migrants on riparian habitat, even small losses on Bureau lands may be significant. Bureau land is expected to provide suitable habitat for most raptor species and may slightly contribute to stabilizing overall raptor populations in the region.

Alternative 2 - Resource Protection Emphasis

Air Resources

The Natural Resource Protection Alternative does not appreciably change impacts to air resources. Impacts from oil and gas activity would still be categorized as significant, with nominal impacts from land disposal/retention and OHV activity. Other categories of activity have no significant impact to air resources in the Resource Area.

The control of fugitive dust is only required in the San Joaquin Valley Air Basin (SJVAB); South Central Coast Air Basin (SCCAB) requirements are explained under the No Action alternative.

Of the five alternatives considered, this has the least amount of lands available for disposal through sale or exchange. Thus, more roads would remain under Bureau management and would be subject to the abatement of fugitive dust in accordance with the SJVAB attainment Plan. Area wide, impacts to air quality due to fugitive dust are not significant, since the percentage of unpaved roads under Bureau management would still be negligible. Should development occur on lands once they move into private ownership, increased PM_{10} generation would occur. On the basis of acreage offered, a slight to moderate impact is possible. The reader is referred to the No Action alternative for further discussion.

This alternative calls for a higher emphasis on the use of Designated Routes of Travel (DROTs) (Appendix H-1). As a result, a reduction of PM_{10} emission levels is realized by reducing travel on some roads and concentrating them on others. Refer to the No Action Alternative for an in-depth discussion of the effect of concentrating vehicular travel on specific roads.

The retention and acquisition of lands with roads which fit the criteria as emission sources in the SJVAB, will require the implementation of Reasonable Available Control Measures (RACM). This in turn will result in a reduction of fugitive dust emissions from current quantities to regulated levels.

Impacts from mining activities are the same as those detailed under the No Action Alternative. However, the potential for increased contribution of PM_{10} is about one third less than the No Action alternative, with only 24,000 acres available for mineral materials extraction.

Emissions due to fluid mineral activity are relatively lower than under the No Action Alternative, with some 4,000 acres fewer available for oil and gas exploration, and approximately 5,000 acres more excluded from leasing. A slight decrease in the total contribution of emissions from this industry would be realized, but the overall impact would still be categorized as significant. The reader is referred to the No Action Alternative for an in-depth discussion of emissions due to oil and gas operations.

Impacts due to OHV activity are comparable to the those indicated under Alternative 1, i.e.: nominally significant. With the additional amount of excluded areas, such as ACECs and areas protected for threatened and endangered species, further dispersement of OHV activity could be expected. The potential for adverse impacts is also heightened by the lack of dedicated OHV open areas, which results in an unquantified and unmitigated amount of fugitive dust released from Bureau managed lands. Refer to the No Action Alternative for further discussion on requirements for staged events, which apply under this alternative as well.

No significant impacts to air quality can be expected under the Resource Protection Alternative from forest management practices, noxious weed and pest control or hazardous materials management.

As in the case of the No Action alternative, the designation of wilderness areas would result in

a nominal positive effect on air quality because of Prevention of Significant Deterioration rule provisions.

Effects on air quality due to wild and/or prescribed fires under the Resource Protection Alternative are not significant, and are the same as explained under the No Action Alternative.

Conclusion. Bureau management under the Resource Protection Alternative would result in measurable cumulative impacts to SJVAB and SCCAB air basin quality. Excluding wildfire, which is highly unpredictable, pollutants emanating from Bureau lands/operations are expected to decline and comparatively continue to contribute about the same percent air basin wide, i.e. less than 13% of the emissions from oil and gas operations, 15% of the emissions from mining and an incidental amount from activities that contribute fugitive dust.

Cumulative Impacts

Cumulative short term benefits and long range effects are the same as described under the No Action Alternative.

Land Tenure Adjustment

Impacts to Land Tenure Adjustment are the same as those described in Alternative 1, with the following exceptions or additions:

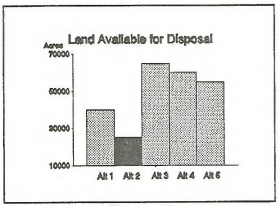


Figure 44

Under this alternative 26,000 acres of public land are available for disposal. This is 14,000 acres less than that available under Alternative 1. It is expected that of these 26,000 acres, approximately 6,500 acres (25%) will be retained in Federal ownership due to environmental considerations. Ninety-five percent (24,500 acres) of the public land considered for disposal will be considered for exchange but not sale.

Much of the resource area would be unavailable for disposal due to high resource values. This includes 444,000 acres within 28 ACECs, as well as wilderness areas, wilderness study areas, and lands within critical or essential condor habitat. This exceeds the amount identified in Alternative 1 by approximately 393,000 acres.

Approximately 196,000 acres of land have been identified as being desirable for acquisition in the areas of Chimney Peak/Kennedy Meadows, South Fork Kern River, Case Mountain, Blue Ridge, and the Carrizo Plain Natural Area. Under this alternative, it is expected that the 26,000 acres of public land available for disposal would provide enough lands to acquire approximately 13% of the area identified for possible acquisition.

Approximately 491,280 acres of mineral estate are available for oil and gas and geothermal leasing, and livestock grazing is authorized on approximately 284,060 acres (47%) of public land. These uses may delay the exchange or sale of the affected lands.

Due to the scattered and rural nature of the public lands, the proposed land tenure adjustments would not significantly affect growth and development near urban areas. It is estimated that over a 15-year period, 10% of the lands transferred to the private sector (2,600 acres) would be developed with roads, buildings, etc.

Conclusion. The conclusions for this alternative are the same as those described in Alternative 1, with the following exception: An

estimated 19,500 acres of public land may eventually be disposed under this alternative. Most lands with significant resources are unavailable for disposal. Lands available for disposal would provide enough lands to acquire approximately 13% of the area identified for acquisition.

Cumulative Impacts

Cumulative impacts for this alternative are the same as those described in Alternative 1.

Land Use Authorizations

Impacts to Land Use Authorizations are the same as those described in Alternative 1, with the following exceptions or additions:

Land Use Authorizations would be constrained on public lands included in 28 ACEC's and right-of-way exclusion and avoidance areas. Public lands identified for disposal (26,000 acres), wild and scenic river study areas (18,600 acres), Ker 311, Granite Cave, Walker Pass NHL (181 acres), and 15 ACECs (287,000 acres) have been identified as right-of-way avoidance areas. This is an increase of approximately 229,000 acres from those areas identified in Alternative 1 that would be constrained. Right-of-way exclusion areas, encompassing 91,000 acres, have been identified at 13 ACECs, wilderness areas and wilderness study areas. Land use authorizations are limited in the Buena Vista Valley ACEC. This would constrain land uses in an area of high oil and gas activity (20,820 acres). Designation of new wind energy and communication sites would not be considered under this alternative. This may cause a slight increase in development on private lands.

Due to the constraints on public lands with high resource values, it is expected that land use applications may decline by 20%. Establishment of right-of-way exclusion and avoidance areas may cause development to increase on private lands, as well as create new routes for power lines and pipelines in order to avoid impacts to the high resource

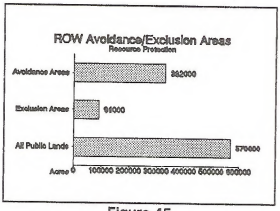


Figure 45

values on public lands.

Designated utility corridors are those existing and occupied corridors delineated in the Western Regional Corridor Study, 1986. These designations would encourage placement of right-of-way facilities within established, previously disturbed and preferred routes and could decrease the proliferation of roads, pipelines and utility lines. Construction of facilities within utility corridors and previously disturbed areas would be recommended. The use of corridors may reduce the proliferation of facilities and reduce the time involved in processing of authorizations. Use of corridors may cause conflicts among users and increase the costs to applicants if relocation of proposed facilities is necessary.

Conclusion. The conclusions for this alternative are the same as those described in Alternative 1 with the following exceptions: Due to constraints on public lands with high resource values, the number of land use applications may be reduced by 20%. Land uses would be constrained where right-of-way exclusion and avoidance areas have been identified (423,000 acres). Designation of new utility corridors may reduce the proliferation of rights-of-way.

Cumulative Impacts

The cumulative impacts for this alternative are

the same as those described in Alternative 1 with the following addition: Due to constraints placed on public lands with high resource values, development may increase on private lands.

Livestock Grazing Management

The elimination of any grazing on the known populations and threatened and endangered species conservation areas of California jewelflower, Kern mallow, San Joaquin woolly threads, Hoover's woolly star, and Bakersfield cactus for the purpose of protecting these species from any grazing related impacts and to provide recovery for these Federally listed species, would result in the suspension of grazing use on fourteen entire allotments encompassing 23,709 acres and 4,125 AUMs. It would also require the partial suspension of grazing use on 510 acres involving 111 AUMs within three other allotments. The proposed seasonal use restrictions, which would allow listed plant species to establish seedlings and complete seed maturation, include no grazing during 2/15 - 5/30 on potential habitat for Hoover's woolly star, no grazing during 2/15 - 4/30 in potential habitat for California jewelflower, and no grazing during 2/1 - 4/30 in potential habitat for San Joaquin woolly threads. In addition, seasonal restrictions for listed animal species areas are also proposed to protect giant kangaroo rat haystacking activities by prohibiting grazing during 4/1 - 6/15. In all allotments with annual range, grazing would only be allowed during the green season of 12/1-4/1 in the Valley Management area and 12/1-5/31 in the Coast and South Sierra Management Areas. In those allotments in perennial range, grazing would only be allowed during the green season of 11/1-5/30. There would also be a requirement for active "green up " or 800 lbs/ac. of mulch before turnout. These restrictions are shown collectively in Figure 46 and are described in further detail in Appendix D-2.

The implementation of these restrictions would severely reduce available grazing use on the remaining 96 allotments by as much as 50%, from an average of eight months to an average of four months. The restrictions on these particular use periods is significantly impacting to grazing operations, since these are also the periods of highest forage nutrient value. The requirement of maintaining a minimum of 700 lbs/ac. of mulch within listed plant and animal habitats could result in a projected four years of no grazing out of ten for public land within each allotment as a result of below normal rainfall. This mulch requirement will also result in less forage available for livestock grazing on poor forage years than would have been available in the past. Managing annual residual mulch at a minimum of 700 lbs/ac. on allotments within Federally listed species habitat would benefit grazing management in the short term by providing protection of the seedbed microenvironment. However, this extreme level of protection could result in excessive mulch layers in the long term and thus lower site productivity. Bently and Talbot (1951) found that "An intermediate degree of grazing, between no grazing and light grazing was the most efficient. It maintained a satisfactory litter cover without apparent soil deterioration. Winter growth of forage was also satisfactory, and there was no significant decrease in amount of desirable forage species."

The "green up" requirement and increased mulch level without "green up" requirement for livestock turn out could also result in several years of delayed livestock turn out, thus reducing the reliability of allowing livestock turn out at the normal season. This would have the most impact to those allotments already facing seasonal restrictions at other times of the year. The 20% utilization level for saltbush is a large reduction from the 50% level which was prescribed in previous land use plans. This specific utilization level will be applied to all allotments which have saltbush present including 7 allotments which never had utilization constraints applied before. The 40% utilization of current annual year's growth on other perennial forage plants is a reduction from the 50% that was previously used as the desired management level on fifty under previous land use plans. This utilization level will now be applied to 60 more allotments

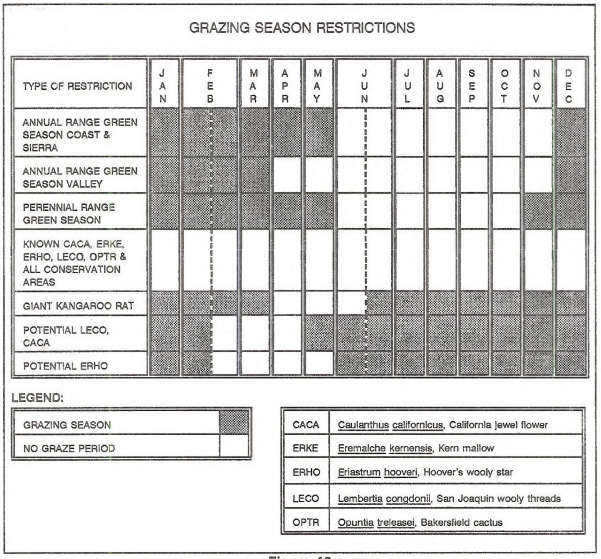


Figure 46

under this alternative than in the past plans. However, six of these additional allotments would already be totally suspended from grazing due to the guidelines for management proposed for the potential habitat of Federally listed species. The conservative perennial forage utilization levels under this alternative could result in a loss in site productivity due to less than optimum harvesting by grazing animals. Stoddart and Smith (1955) stated that, "A grazed plant is like a pruned plant, and every nurseryman or orchardman knows the value of pruning the woody plant. Upon grazing, the plant will branch and become more bushy, and this forage will be less rank and fibrous."

Range improvement construction could be restricted due to the presence of listed plants or animals. The use of forage on private lands could be indirectly limited due to restrictions to grazing use on public lands, if the private land is unfenced and intermingled with the public land.

Impacts from the proposed riparian management guidelines on grazing management and the forage resource would be the same as those under Alternative 1, but would now apply to three more allotments.

Impacts from management of the Temblor and Caliente NCLWMAs on grazing management,

as well as those from forest management, would be the same as those under Alternative 1.

Impacts to livestock grazing management from oil and gas development, as predicted in the reasonable foreseeable development scenario, would be similar to those specified under Alternative 1. However, two allotments and 536 AUMs on four allotments which would incur impacts under Alternative 1, would have use totally suspended under this alternative due to protection measures for Federally listed species. They would therefore be unaffected by the extent of oil and gas development. Additionally, four of the six allotments which border the major oil and gas developing fields would also be eliminated or severely reduced by Federally listed species restrictions prior to any impacts from oil and gas development.

The establishment of designated routes of travel for recreational purposes as proposed under this alternative, if enforced, could have beneficial impacts to grazing management as a result of increased restrictions on vehicle use. These beneficial impacts could include lower forage losses from reduced vegetation destruction and erosion, reclamation of roads to be designated as closed, and reduced vehicle/livestock conflicts.

Proposed management of the newly acquired lands within WSAs, visual resources, wild,scenic and recreational rivers and areas of environmental concern would have the same impacts to livestock grazing management as detailed under Alternative 1.

An estimated 66% of public lands proposed for disposal under this alternative would fall within existing allotments and could result in up to 1,700 AUMs becoming unavailable to the current lessees/permittees. It is anticipated that the majority of these disposals will not be made to the current lessee/permittee due to economic constraints. An estimated 34% of public lands proposed for disposal under this alternative would fall outside existing allotments and would result in an estimated 580 AUMs becoming unavailable for grazing lease or permit. Some private grazing operations have public land inholdings. The proposed disposal of these public land parcels could improve their management by eliminating unauthorized grazing. This would eliminate the need for costly range improvements. The acquisition of 196,000 acres of private land could provide an estimated 10,000 AUMs of forage available for livestock grazing if these parcels were not grazed under previous ownership. If these acquired lands were previously grazed, the grazing use on them could become more restricted than that which was allowed under private ownership. This could result in less forage being available to livestock for grazing. The proposed acquisition of private lands could improve management capabilities on 34 existing grazing allotments by blocking up scattered public parcels and providing opportunities for pasture systems, better livestock distribution through more efficient range improvement design, and improved management control within these allotments. Other land use authorizations and transactions such as rights-of-way, withdrawals, access acquisitions, land permits and leases would cause insignificant impacts to grazing management.

Impacts from proposed fire suppression actions and the impacts of restrictions to reduce PM_{10} emissions on grazing management would be the same as those under Alternative 1.

Implementation of the proposed management under this alternative can be accomplished with present funding and staffing but not without increased impacts. Impacts due to constraints on funding and staffing would be the same as described in Alternative 1.

Conclusion. Impacts of Alternative 2 to grazing management would result in approximately 60% less forage being harvested from public lands. This alternative is by far the most restrictive on the amount of forage harvested by livestock. This impact is mainly caused by the seasonal restrictions or the elimination of grazing required to protect and provide recovery for Federally listed

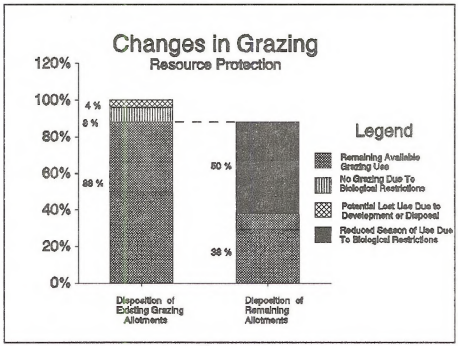


Figure 47

species, as well as the implementation of new mulch levels and the establishment of perennial forage utilization levels for saltbush and other perennials on all allotments. Alternative 2 would consequently result in approximately 24,000 acres of public land becoming totally unavailable for livestock grazing and the remaining authorizations being reduced by at least 50% due to the protection measures for known populations of Federally listed species and the combination of all Federally listed species' restrictions. In addition, up to 1,938 AUMs within existing allotments would be lost due to land disposals and oil and gas development. The opportunity for providing proper grazing management and increasing its efficiency through range improvement projects would also be moderately limited by Federally listed species restrictions and special land designations, such as ACECs proposed in this alternative. Flexibility of grazing management options would be severely impacted on allotments within potential habitat for Federally listed species by the compression of normally allowable seasons into short grazing use periods or by the total elimination of grazing by combined restrictions that encompass the entire year.

Socio-Economic Impacts

Impacts of implementing allotment management plans in the Coast and South Sierra Management Areas will be similar to those described under Alternative 1, resulting in a slight increase in operating costs.

Under this alternative livestock forage would be lost from 24,219 acres of public land within seventeen allotments, due to restrictions to protect Federally listed species. These allotments contribute a substantial amount of forage to at least eight livestock operations within the Valley Management Area. Intermingled public and private lands which have been managed as one unit in the past would need to have the public land fenced in order for the lessee/permittee to avoid having to apply strict public land management prescriptions to the intermingled private lands. Hundreds of miles of new fences, possibly more than 600 miles, would need to be constructed to separate public from private land on 62 allotments. This would limit management restrictions for the protection and recovery of Federally listed species to public lands. The cost of this amount of fencing would be approximately $2,400,000, including labor. This would be a significant expense to most livestock operations, depending on land patterns, and may force a considerable number of leases to be relinquished or even preclude grazing use on intermingled private lands thus forcing operations entirely out of business.

Conclusion. Under Alternative 2, there would be a moderate to high adverse economic

impact (depending on land patterns) to most of the 52 allotments within the Valley Management Area and 12 allotments within the South Sierra Management Area due to management changes needed to protect Federally listed species. There would be a slight economic impact to grazing operations in the Coast and the remaining allotments in the South Sierra Management Area.

Cumulative Impacts

The implementation of this alternative could result in improved resource conditions in all three management areas due to the application of more conservative forage utilization guidelines and the elimination of yearlong grazing. However, the long term resource condition may eventually deteriorate due to the lack of plant growth stimulation caused by light to moderate grazing, especially on saltbush plants. Some plant communities not affected by any other factors (such as fire) may eventually become decadent. Grazing management efficiency throughout the Valley Management Area, including private lands, would be reduced by the construction of fences to separate the private land from the public land management.

Impacts from acquisition and disposal are similar to those described in Alternative 1.

On those areas where grazing allotments remain, increased restrictions for listed species and air quality on all land uses would reduce the likelihood that native rangelands would become unavailable for grazing use due to development for other purposes, provided grazing use is not eliminated due to expected impacts to Federally listed species.

Overall impacts to the livestock grazing industry in the Caliente Resource Area would be moderate to high, considering that the majority of changes in grazing management due to protection measures or recovery efforts for Federally listed species would occur in the Valley Management Area. Additional impacts related to the expense of required new fencing would be the same as described in Alternative 1. The impact could be slightly reduced by the potential benefits of a more productive and reliable forage resource in the short term on public land as a result of the proposed management actions, but only for those areas where grazing would still be allowed. Restrictions or removal of grazing use on public land could increase the already high demand for California's diminishing native rangeland and could cause increases in the price of private forage sources. This increase could eventually adversely affect the entire livestock industry and lead to a higher cost of red meat production in the western United States.

Mineral Resource Development

Under the Resource Protection Alternative, impacts to mineral development from requirements of the Endangered Species Act are expected to be unchanged from the No Action Alternative. The area proposed for wilderness is also unchanged.

The following ACECs with moderate or high mineral potential will be withdrawn or closed to mineral development. Kernville Hot Springs ACEC, and the Keyesville ACEC within the only area managed by the Bureau with high potential for geothermal resource development, will be closed in this alternative. Kernville Hot Springs ACEC also has moderate potential for tungsten and related metallic minerals. In the Cypress Mountain ACEC there is a manganese mine and four mercury mines or prospects, which have potential for associated gold. In addition there is low potential for chromite. Within the Rusty Peak ACEC there is a chromite mine. Tierra Redonda Mountain ACEC is prospectively valuable for phosphate. Erskine Creek ACEC has moderate potential for geothermal resources, and moderate potential for tungsten and other metallic minerals. Only 360 acres of the Erskine Creek ACEC is proposed for withdrawal from the mining law, although VRM Class II guidelines will severely restrict locatable mineral development. The North Fork of the Kaweah River ACEC has moderate potential for tungsten and related metallic minerals; the

entire ACEC is proposed for withdrawal. Piute-Cypress has moderate potential for gold and other metallic mineral resources. Within the Carrizo Plain ACEC, salt and sodium sulphate, solid leasable minerals, have been produced from Soda Lake. The normally dry lake bed contains estimated reserves of at least one million tons of sodium sulphate. About 7,000 acres of the Carrizo Plain ACEC have moderate potential for phosphate. Areas just out of the Chico Martinez ACEC have been extensively mined for gypsum. The ACEC will be closed to mineral location under this alternative. Within the Sand Canyon ACEC, which has moderate potential for salable minerals, development will be severely restricted by VRM Class II guidelines.

Within the Walker Pass and Chimney Peak ACECs disposals of mineral materials may only be made away from riparian zones, Joshua trees, sensitive plants and cultural resources. This requirement, combined with the recommended Owens Peak and Rockhouse Wilderness Study areas, recommended Wild and Scenic River designations, and the Walker Pass National Historic Landmark will effectively close or withdraw much of the area to locatable or salable mineral development. Portions of these ACECs have high to moderate potential for locatable minerals and salable minerals. The only active sand and gravel operation for aggregate in the Lake Isabella area is located in the Walker Pass ACEC within the bed of Canebrake Creek. A portion of this operation is on reserved mineral estate. At this location the creek generally only carries water during flash floods. Except for the site of the sand and gravel operation, Canebrake Creek is considered eligible for Wild and Scenic River Status. In addition, there are numerous Joshua trees out of the active bed. Expansion of this operation may be hampered if not denied due to these factors.

Conclusion. The acreage of Wilderness, Wilderness Study Areas, habitat of Federally listed species and other restrictions or impediments to mineral resource development which do not change between alternatives are discussed in No Action Alternative of the Environmental Consequences.

Management prescriptions for Areas of Critical Environmental Concern will close 160,000 acres to geothermal resource development, 128,000 acres to solid leasable minerals, 34,000 to locatable minerals and 32,000 to salable minerals. In this alternative, about 145,000 acres are VRM class II, which will severely hamper any mineral resource development on these lands.

Cumulative Impacts

The cumulative impact to mineral development by restrictions, withdrawals and closures proposed in this alternative will be significant.

Gypsum and phosphate are extensively used in local farming operations. Sodium sulfate is used in the manufacture of paper, detergents and glass. Sand and gravel are important for maintenance and construction of roads and structures. The cumulative impact of loss of sources within the Caliente Resource Area will increase costs due to longer transportation distances for bulk commodities produced within the U.S. such as gypsum, phosphate and sand and gravel. Tungsten and chromite, essential in production of steel alloys, are strategic minerals. Presently most chromite and tungsten is imported, with the resultant increase in trade imbalance and hydrocarbon emissions by ships over locally produced minerals. Gold is not only used for jewelry, but is extensively used in high-technology applications as a electrical conductor. During times of national emergency when stocks of strategic minerals are drawn down and foreign supplies disrupted, access to land with domestic sources will be hampered. Geothermal energy is a low-cost, low-pollution alternative to fossil fuels. For the loss of geothermal resources at Kernville Hot Springs, additional fossil fuels will be burned.

Oil and Gas Development

The implementation of the Resource Protection Alternative will result in predominately minor to moderate impacts to oil and gas development within high and moderate oil and gas potential lands. Looking at lands with moderate to high potential for oil and gas, this alternative identifies: 2,000 acres within non-discretionary closures, 109,000 within discretionary closures (chiefly within ACECs), 315,000 acres are open to leasing subject to major constraints, and 48,000 acres are open to leasing under standard lease terms. Negligible impacts are expected to oil and gas activities on the 457,000 acres of land with no or low oil and gas potential. Primary impacts to oil and gas activities are those that affect the cost of exploration, development, and production.

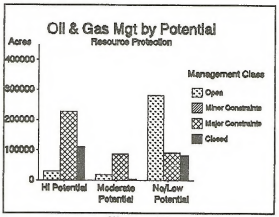


Figure 48

A positive impact, as a consequence of the implementation of this alternative, is allowing public lands to be offered in regular yearly lease sales. This will be beneficial to the exploration and development of oil and gas in the resource area.

As with the No Action Alternative, most drilling will be development drilling, of which 75% will take place in Midway-Sunset, and on lands leased prior to 1992. This alternative would result in more unleased lands being closed to oil and gas development as a result of management of other resources, and additional high to moderate oil and gas potential lands being subject to major constraints, or special stipulations within ACECs.

Some land will be withdrawn from leasing. Much of this land (207,000 acres) will be closed to new leasing within ACECs. Management of non oil and gas resources within ACECs involves areas of mostly low to moderate oil and gas potential, such as the Sierras and coastal mountains. Nonetheless some ACECs will incorporate high potential lands. Some sensitive areas are composed of large tracts of land which will not allow even directional drilling to reach all targets. Examples are the Carrizo and Bittercreek ACECs, which contain high oil and gas potential lands that have been previously drilled by major oil companies, and continues to be prospective. It is closed to oil and gas operations under this alternative. As a consequence, potential oil and gas resources will be left undeveloped due to the large size of some ACECs, or other sensitive lands. This would result in 2 or less wildcat wells being drilled instead of the 2 to 8 per year presently projected. Instead of one to two new fields being discovered on public lands, none would be found.

Impacts from Air Quality

A more complete discussion of air quality targets can be found in Alternative One. The more salient impacts that result from management actions under this alternative are discussed below. Oil and gas operations can only take place on BLM land if the operator is in compliance with local air pollution control districts (APCDs), as well as with State and other Federal regulations. BLM may require proof of compliance with local APCD requirements; non-compliance could lead to delays or even shut down of operations. Energy companies are expected to be currently in compliance, so more rigid insistence on compliance should not increase costs. The cost of compliance to operations and refining will not change unless regulations change. Therefore impacts are expected to be minor.

San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) figures indicate that less than 5% of PM_{10} particulate pollutants come from activities related to oil and gas (SJVUAPCD 1991 Air Quality Attainment Plan published 1/30/92). Because some of the particulate matter is from dust raised on unpaved dirt roads BLM requirements for PM_{10} abatement will limit usage of some roads, insist on use of designated routes of travel (DROTs) wherever possible, and demand prompt rehabilitation, including requiring dust and other particulate control measures. Due to the establishment of DROTs, there may be increased costs in the form of travel time, added fuel needs, and permitting delays when use of non-designated routes of travel are necessary. In general, impacts from this issue are expected to be minor.

Land Use and Transportation

Impacts from land tenure adjustment are similar to those described under Alternative 1. The minimal impacts described under that alternative would be greatly reduced under this alternative, with only half as much land available for disposal. High to moderate oil potential lands which are also major areas of land acquisition include the Carrizo Plain and Kettleman Hills. Lands with low to no oil and gas potential which are potential acquisition areas include Case Mountain, Blue Ridge, Chimney Peak, and the South Fork of the Kern River areas. Few lands in areas of high potential have been identified for disposal; therefore negative impacts as a result of sale or exchange will be minimal.

As noted in the section on air quality, there will be an emphasis on designated routes of travel (DROTs) under this alternative. Use may be authorized of other routes of travel, however. There may be delays due to processing permits which will add to costs, although impacts in general are expected to be minor. Where requests to use alternative routes of travel are denied, then there will be some minor increases in the amount of travel time to rigs and other areas of activity, and these will add negligibly to costs. Restriction to designated routes of travel could result in some minimal restrictions on the placement of facilities, and timing delays for rights of ways, resulting in minor added costs. These minor costs will negatively affect the small independents the most.

Impacts From Threatened and Endangered (T&E) Species

The management of threatened and endangered species in the high to moderate oil and gas potential areas of the Caliente Resource Area would result in many currently unleased lands being closed to future oil and gas development, substantial delays due to the necessity of performing inventories, and the reduction of future leasing. A Controlled Surface Use Stipulation (Stipulation C1 in Appendix G-3) is proposed for nearly all of the unleased lands with significant oil producing potential in the San Joaquin Valley. The Controlled Surface Use Stipulation can be waived or an exception granted once inventories for threatened and endangered species are completed on land to be leased, and the exploration or development of the lease is not found to conflict with the species or its habitat.

If leases subject to the Controlled Use Stipulation or other restrictive measures have T&E species and habitat, adjacent lands or other locations upon the lease may be used. This will entail moving of operations and drilling a deviated well, or directional well. Directional drilling can add greatly to the funds required by operators.

If there is a denial or significant delays of operations, it may cause loss of production, and consequently a loss of royalties to the Federal government. This alternative would greatly reduce the likelihood of finding new fields on public lands, with a concomitant loss of new proven reserves. As a result, up to several million barrels of oil may not be added to the nation's mineral wealth. If inventories require the moving of operations there will be

added expenditures such as crew-time costs and machinery costs. Therefore, in this alternative impacts to oil and gas operations from management of threatened and endangered species would be moderate.

The implementation of new conditions of approval for drilling, including drilling on currently leased lands, may also require some additional mitigation measures, delays, and moving of well sites. Oil and gas operations within existing fields are expected to have minor impacts from management of threatened and endangered species constraints under the Resource Protection Alternative; new drilling and field extensions will have greater impacts to them. These types of impacts were noted in Alternative One. These items may combine to place undue hardships on operators and make the drilling of wells uneconomical.

Effects of implementation of this alternative on exploration efforts, such as wildcat drilling and the running of seismic lines, will be minor to moderate overall as a result of restrictions to surface disturbance on public lands. The same effects could occur on private lands adjacent, interrelated, or interdependent to projects on the public lands. For example, if public lands are involved in running seismic lines, the associated private lands dedicated to completion of the same line are also subject to the same scrutiny as the public lands.

The upshot will be an avoidance of public lands by operators, and concomitant greater utilization of private lands. Impacts to geophysical exploration and to wildcat drilling would be more severe than in the other alternatives, but impacts under this alternative should still fall within the limits of moderate impacts because of the small amount of public land in the region.

Resultant impacts to oil and gas from threatened or endangered species management will be a chilling of the local oil and gas economy and loss of jobs. The impacts of this stipulation are similar to those described under the No Action Alternative in those areas where the Controlled Use Stipulation is applied. The degree of consequent hardship is dependent on the size of the company sustaining the losses and increased costs; a major oil company will sustain a minor impact from an action that could impose a severe impact to a smaller independent operator.

However, the vast majority of lands of interest are currently leased. As with the No Action Alternative, currently existing leases, including those held by production, are limited by existing terms and conditions, and would be unaffected by any stipulations identified in this plan. Because of this, impacts from these factors are estimated to be minor to moderate under this alternative.

Impacts from Water Quality

Standard Operating Procedures (SOPs) and Conditions of Approval (COAs) regarding sumps, abandonment of sumps, berms, the tanking of drilling fluids, and disposal of contaminated soil also add costs to production and development. Under this alternative sumps will need to be screened to prevent materials from escaping the sump, or animals entering the sump. All sumps under this alternative must be in the form of prefabricated sumps or enclosed tanks. Additional remediation and mitigation of older open sumps contaminated by chromium, barium, arsenic or other toxics will also add costs. Surface contamination of natural drainages and contamination of groundwater will be important issues requiring rigid compliance by the BLM on Federal lands. Tanking of drilling fluids and disposal of contaminated soil may impact small independents severely, and larger operators will suffer lesser impacts ranging from minor to moderate.

Impacts resulting from the protection of aquifer integrity will be similar to those described for the No Action Alternative. There may be increased monitoring of casing in newer wells and of the testing the sealing of older wells to ensure aquifer integrity. Remedial actions will be required, if warranted. There will be minor to moderate costs as a result of required

monitoring, testing and possible remediation of wells.

Other Impacts

Impacts to oil and gas by other issues not addressed above are similar to the impacts discussed in Alternative One, and are expected to increase only somewhat in Alternative Two. Impacts will remain minor to moderate as in Alternative One.

Conclusion. Implementation of the Resource Protection Alternative would result in minor to moderate impacts to oil and gas development within high and moderate oil and gas potential lands. Only 13% of production and operations is from Federal lands, the remaining 87% encompass private land holdings. The effects to most operators will therefore be minor, although operators who have large Federal holdings could sustain minor to moderate impacts.

Air quality and threatened and endangered species management have the most potential to cause negative impacts under this alternative. Impacts related to air quality should be minor, but are contingent upon APCD requirements. Impacts in currently operating fields due to the presence of threatened and endangered species would be minor, although lands leased after implementation of this plan will sustain minor to moderate impacts. Exploration on public land would decline, thereby making the discovery of new proven reserves (1 to 2 fields' worth, perhaps totalling several million barrels) significantly less likely. Field extensions would therefore be discouraged, and seismic activity diminished in order to limit surface disturbance.

The number of wildcat wells on Federal land is extremely variable and is based on world events, supply and demand (which determine price), and recent discoveries of new pools or structures which lead oil companies to attempt to follow similar leads or trends. In 1991 (through September 30, 1991) only 6 Applications for Permits to Drill wildcat wells on Federal land were filed in the Caliente Resource Area. The existing low level of wildcat activity on Federal lands is expected to be further reduced by one third under this alternative.

As increased restrictions limit activity on public lands, nearby or adjacent private lands will undergo greater surface disturbance. Public lands may be avoided in order to run seismic lines, or to directionally drill wells. All such actions will result in greater impacts to private lands.

Cumulative Impacts

The cumulative impacts to the development of oil and gas are varied. External influences and their relationship to this plan as described under the No Action Alternative remain unchanged under this alternative, except as described below.

Negative impacts in the form of higher costs are expected from management of air quality, recreation, threatened and endangered species, and water issues. Each individually contributes minor impacts, but their cumulative impacts may force some small operators out of business if the currently (1992) depressed local oil and gas economy continues over the life of the plan. Trends in the oil and gas industry within the Resource Area are toward stagnation or very slow growth. A rebound in demand for oil and gas would lead to more activity in operations which would increase conflicts with the management of most other resources, impacts then would slightly increase. A great preponderance of activity will take place in the Valley Management Area - 75% of drilling will be development drilling within the Midway-Sunset Field. Impacts to oil and gas are expected to be in the minor to moderate range however.

Section 208 of the Federal Water Pollution Control Act and the State of California Nonpoint Source program establishes a plan for identifying Best Management Practices on public land. These practices are to be coordinated with the concerned regional boards. Though beyond the scope of this plan,

added costs for mitigation, remediation and monitoring run off for toxics in producing areas may result in moderate to severe impacts.

Currently (1992), at least 6.5 % of total employment in Kern County (13,000 out of 199,000 jobs) and at least 3% of resource area-wide (18,000 to 20,000 out of 684,000) jobs directly related to oil and gas (Board of Trade figures, and WSPA figures 1992). This low estimate may not fully represent those employed in related construction, mechanical repair and other fields ancillary to the exploration and development of oil and gas.

The minor to moderate costs described earlier will have a slight impact when combined, especially when compared with other factors beyond the scope of this plan which influence oil and gas operations. Due to outside forces, in concert with the chiefly minor to moderate impacts under this alternative, industries will continue to relocate out of the resource area, intensifying the chilling of the local economy. Local tax roles will suffer, culminating in loss of public services. This may be exacerbated by added costs, which can result in their pulling even more operations out of the resource area. Any drop in operations could result in higher numbers of unemployed, a demise of smaller to medium companies, and loss of royalties revenue. The restrictions identified under this alternative could also lead to avoidance of public lands for oil and gas exploration and development, possibly leading to a more rapid deterioration of private lands.

The result is that under this alternative on Federal lands, there may be about 150 APDs issued per year, up to 2 wildcat wells may be drilled each year, and no new fields discovered. Enhanced oil recovery drilling may increase from 4% to 10% a year over the life of the plan. There will be up to 5 Notices of Intent (NOI) for seismic exploration, and 10 to 100 acres of related short-term disturbance each year. There will be up to 770 acres of lands reclaimed over the life of the plan from all types of disturbance. Therefore net surface disturbance will be from 1,110 to 3,300 acres. This is less than 1% of the total Federal lands and is a negligible amount of disturbance.

The local oil and gas industry is experiencing moderate to severe impacts from forces beyond the scope of this plan. Although the actions identified under this alternative would result in minor to moderate impacts by themselves, they would contribute to the greater cumulative impacts suffered by industry.

Recreation

Recreation use is increasing due both to continued high population growth in southern and central California and changes in sociological, economic conditions, and for technological factors. These local population trends will place increased recreation and open space demands on the public lands in the Caliente Resource Area.

Vehicles on most public lands would be designated as "limited" to designated routes. Closed areas include the Point Sal, Frog Pond Mountain and Blue Ridge ACECs, Short Canyon, part of the Keyesville area, and the Machesna and Santa Lucia wilderness areas. No OHV open use areas would be available under this alternative. As unauthorized OHV areas are signed and closed, there would be a loss of this form of recreational opportunity.

The Soda lake - Elkhorn Plains loop road, the Canebrake - Long Valley loop road, and the Kelso Valley Road would be designated as Backcountry Byways. This designation and subsequent publicity would result in an increase in motorized touring recreational use in these areas.

The disposal of up to 26,000 acres of small isolated parcels of public lands would have negligible impacts to recreation use. Most of these parcels have no public access and their use is controlled by the adjacent landowners. Retention of these parcels would not benefit public recreational use or opportunities.

Acquisitions of land which increase public access would increase recreational

opportunities and use. However such benefits could be limited, as public use of most acquired lands might be restricted to protect threatened and endangered species or other special resource values.

Acquisition of public access to the Duck Pond and Goose Lake would benefit birdwatching, environmental education and nature study opportunities in these areas. Non-motorized public access would be acquired to Cypress Mountain, and pedestrian access to Point Sal, which would increase hiking, hunting and related outdoor pursuits in these areas. In addition, public access for use by permit only would be acquired to Case Mountain and an agreement with adjacent landowners for controlled public access to the Chico Martinez ACEC would be developed. This would increase hiking, hunting and related outdoor pursuits in these areas. Public access through Montana de Oro State Park would be provided to the BLM lands north of Coon Creek. Except for providing public access, no additional facilities would be developed for recreational use.

Camping within the 114,000 acre Carrizo Plains ACEC would be restricted to two locations. This would result in some loss of dispersed camping opportunities which would primarily affect hunters who camp near their hunting area. Opportunities for dispersed camping would be eliminated on an additional 15,100 acres. A significant reduction in dispersed camping use and opportunities would occur in the Keyesville and North Fork of the Kaweah areas. The three major public use areas on the North Fork of the Kaweah River would be closed to dispersed camping and managed for extensive recreational day use.

Subject to an environmental analysis, an additional raft launching site would be developed on the lower Kern River for use in low water years. This would assist rafting use during years of low flows.

The designation of an area for dog trials and a shooting range within the Temblor NCLWMA would benefit organized activities of this type. There are sufficient adjacent public lands to accommodate any other recreational users who might be displaced as a result.

About 8,300 acres would be closed to shooting, which would eliminate hunting and target shooting in those areas. The shooting closures would have the most affect in the Keyesville and Piute Cypress areas. However the impacts would be minimal since there are extensive BLM and Forest Service lands nearby to accommodate any displaced hunters and target shooters.

Cooperative management with Santa Margarita Lake County Park on adjacent public lands would increase the recreational opportunities and use of this area for hiking and other non-consumptive uses. There could be a minor loss of hunting opportunities on these lands.

Public lands within 1/4 mile of normal high water would be managed to protect the values of any waterway which has been found to be eligible for potential designation under the Wild and Scenic Rivers Act. Designation of a waterway as a wild, scenic or recreational river could result in a small increase in visitors from those attracted by the river designation.

Lands within Wilderness Study Areas will be managed under the guidelines of the wilderness Interim Management Policy or, if designated as wilderness, they will be managed under BLM wilderness policy. Lands within Wilderness Study Areas that are released from consideration for designation as wilderness, will be managed to protect their primitive values. The designation of an area as wilderness would likely result in a minor increase in public use by those attracted by the wilderness label.

Enhancement of wildlife habitat to increase wildlife populations would improve hunting and wildlife observation recreational opportunities. Prescribed burning, by enhancing wildlife habitat and reducing the potential severity of

wildfires, would also enhance recreational use. There would be a short term negative impact to scenic values from prescribed burning.

Enhanced riparian management would slightly benefit recreational use by providing better hunting, birdwatching, scenic quality, etc.

The management of ACECs and other lands for sensitive resources species would not have a significant impact on recreation although recreational activities may be restricted within the ACEC, and some users displaced to other less sensitive areas. Public use off of designated routes would be limited to pedestrian use on 12,500+ acres. However this would have only a minor impact as little equestrian use occurs in the areas to be restricted.

Up to 200 pinyon pine trees near Chimney Peak would be available as Christmas trees for non-commercial use. A restricted amount of firewood cutting would be allowed. This would provide limited amounts of these types of recreational use.

Grazing would continue on 284,000 acres, about 69% of the area currently grazed. There would be some additional restrictions on grazing under this alternative. Wildlife habitat conditions would be improved, resulting in increased hunting and wildlife observation recreational opportunities.

The retention or revocation of withdrawals would have limited impacts on recreational opportunities. Impacts would occur only if these lands are subsequently developed for mining or for oil and gas operations. Reasonably foreseeable developments in oil and gas development or mining activities would result in minimal impacts on recreational opportunities and uses.

Conclusion. Alternative 2 does little to benefit the recreating public, and in many areas limits options available, especially for vehicle use and dispersed camping opportunities. Anticipated increases in public recreation use from 1,620,000 to 1,800,000 visitor use hours can mostly be attributed to urban expansion and population growth. Some of the increase can be attributed to increased publicity and public visitation to the Carrizo Plain Natural Area and motorized touring on Backcountry Byways. Closure of the Kaweah River and Keyesville informal camping areas would result in a loss of dispersed camping opportunities in these areas. Improved access and enhanced wildlife management would benefit recreation activities.

Cumulative Impacts

Visitor use will continue to adversely impact other resources in high recreation use areas. However the elimination of dispersed camping will greatly reduce the level of these impacts in the North Fork of the Kaweah and Keyesville areas. With the availability of numerous recreational opportunities on adjacent National Forests and National Parks, as well as the availability of extensive dispersed use opportunities on public lands to the east, increased limitations are expected to have an insignificant impact on overall recreation activities.

Vegetation

Federally Listed Species

California Jewelflower. The impacts from grazing within the Carrizo Plain Natural Area (CPNA) would be the same as those described in Alternative 1. Outside of the Carrizo Plain, grazing would not be allowed within known populations or in designated threatened and endangered species conservation areas for the California jewelflower. Outside of conservation areas but still within potential habitat, a minimum mulch level of 700 lbs/acre must be maintained and 20% utilization of the current year's growth is allowed on perennial species. Grazing would not be allowed from February 15 to April 30 within potential habitat. New populations of California jewelflower found outside of threatened and endangered species conservation areas could be inadvertently grazed. Once new populations are found they

will receive the full protection of currently known populations. Possible impacts to undiscovered populations outside of conservation areas could result if the season of use is not appropriate for the species. This alternative could result in impacts to the species if some level of grazing is necessary for the continued vigor of the species. If this should be the case, not grazing the species could result in a gradual reduction in numbers over time. It is unlikely that withholding grazing for the life of the plan would result in the extirpation of populations.

Impacts from oil and gas exploration, leasing, and development under this alternative would be the same as those described for Alternative 1.

The listed species primarily occur within the Valley Management Area where 4,000 acres shall remain available for disposal. Of these acres, it is expected that 75% or 3,000 acres will actually be disposed. As explained in Alternative 1, this would result in the loss of 3,000 acres that may be necessary for the recovery of the species. Approximately 10% of the acreage transferred to the private sector will be developed with roads, buildings, etc. This would result in the permanent loss of 300 acres of potential habitat for the listed species.

A total of 154,000 acres were identified as potentially suitable for acquisition within the Valley Management Area. Emphasis will be placed on acquisition of high resource value lands within ACECs, NCLWMAs, WSAs, WSRs, and threatened and endangered species conservation areas. Acquisition of lands with listed or sensitive plant species will benefit these species by providing additional protection.

Five new ACECs within listed plant species habitat would facilitate the recovery of the species. The Carrizo Plain ACEC would incorporate the San Andreas Fault Scarp, Elkhorn Plain, and Soda Lake ACECs, and extend to cover the entire Carrizo Plain Natural Area as well as a large portion of the Caliente Mountains. All of the known locations of California jewelflower on public land within the resource area, except for one location in the Cuyama Valley, would be protected from oil and gas leasing, solid mineral leasing, and development of mineral materials. Mining of locatable minerals would require compensation. Conflicting land uses and rights-of-ways would be avoided.

San Joaquin Woolly-threads. The impacts from grazing within the CPNA would be the same as those described in Alternative 1. Outside of the Carrizo Plain, grazing is not allowed within known populations or in designated threatened and endangered species conservation areas for the San Joaquin woolly-threads under Alternative 2. Locations outside conservation areas in potential habitat will be managed the same as potential habitat for California jewelflower outside of threatened and endangered species conservation areas. Impacts could result to unknown populations outside of conservation areas. Once new populations are found they would be fully protected from grazing. The potential impacts from not grazing the species are similar to those described for California jewelflower.

Impacts from oil and gas exploration and development under this alternative would be the same as those described in Alternative 1.

The effects of land disposal and acquisition under this alternative are similar to those described for California jewelflower.

Known populations and potential habitat of San Joaquin woolly-threads would be protected by the designation of Carrizo and the Kettleman Hills as ACECs. Under this alternative the Carrizo Plain ACEC is closed to oil and gas leasing. Oil and gas leasing may occur subject to major constraints in the Kettleman Hills ACEC. Oil and gas development could only occur where impacts to listed species are acceptable. Nearly all of the known colonies of San Joaquin woolly-threads on public land within the resource

ACECs Expected to Significantly Benefit Sensitive Plant Species or Communities			
ACEC	Federally Listed Species	Candidate Species	Sensitive Plant Communities
Irish Hills			X
Rusty Peak			X
Salinas River			X
Tierra Redonda			X
Alkali Sink		X	X
Blue Stone Ridge		X	
Buena Vista	X	X	X
Carrizo	X	X	X
Chico Martinez			X
Goose Lake		X	X
Kettleman Hills	X	X	X
Lokern	X	X	X
Case Mountain			X
Chimney Peak/Lamont Meadow		X	
Erskine Creek		X	
Kernville Hotsprings		X	
North Fork of the Kaweah River		X	X
Piute Cypress		X	
Walker Pass		X	

Table 27

area are within these two areas.

Kern Mallow. The impacts of grazing under this alternative would be the same as those described in Alternative 1.

Designation of the Lokern area as an ACEC would protect the known range of the species from oil and gas development. Under this alternative, the Lokern ACEC would be closed to oil and gas development and geophysical exploration. Continuing development within existing oil and gas leases would still impact Kern mallow.

Hoover's Woolly-star. The impacts from grazing within the CPNA would be the same as those described in Alternative 1. Outside of the Carrizo Plain, grazing is not allowed within known populations or in designated threatened and endangered species conservation areas for Hoover's woolly-star. A total of 15,837 acres in known habitat and an additional 3,384 acres in threatened and endangered species conservation areas would not be grazed. Areas outside threatened and endangered species conservation areas in potential habitat will be managed like potential habitat for California jewelflower outside of conservation areas, except grazing will not be allowed from February 15 to May 30. Impacts could result to unknown populations outside of threatened and endangered species conservation areas. Since grazing can damage the cryptogamic crusts at any time of the year, potential habitat may be degraded outside of conservation areas. Once new populations are found they would be fully protected from grazing. The potential impacts from not grazing the species are similar to those described for California jewelflower.

Impacts from oil and gas exploration and development under this alternative would be the same as those described in Alternative 1.

The effects of land disposal and acquisition under this alternative are similar to those

described for California jewelflower.

Known populations and potential habitat of Hoover's woolly-star would be protected by the designation of Carrizo, Lokern, Alkali Sinks, Kettleman Hills, and Buena Vista Valley as ACECs. Designation of these ACECs may provide important recovery habitat for the species.

Bakersfield Cactus. No grazing will be allowed in the threatened and endangered species conservation area for Bakersfield cactus. This will protect any undiscovered populations on public land from trampling impacts and may aid in the recovery of the species.

Some potential Bakersfield cactus habitat is proposed for acquisition under this alternative. Acquisition of habitat would greatly benefit the species. Much of the known habitat on private lands is currently proposed for a housing development. Development in other areas of known habitat has caused extirpation of populations and fragmentation within populations. A proposed reserve area for Bakersfield cactus within the area of the Metropolitan Bakersfield Habitat Conservation Plan (HCP) would allow cactus clumps from areas to be developed within the city to be transplanted to this reserve. Mixing populations of Bakersfield cactus may result in genetic contamination, loss of genetic diversity, and the ultimate decline of the species. Proposed acquisitions could reduce these impacts.

Impacts from oil and gas exploration, leasing, and development under this alternative would be the same as those described for Alternative 1.

None of the proposed ACECs are within the range of the Bakersfield cactus.

Conclusion. Grazing management under this alternative should not adversely affect the five Federally listed plant species and may aid in the recovery of these species. Potential habitat which may be necessary for the recovery of the species may be lost due to oil and gas leasing and development, mineral development, and disposal of Federal lands. Designation of new ACECs and continued acquisition within new and existing ACECs should benefit the five listed species.

Cumulative Impacts: Federally Listed Species

See Alternative 1 for a discussion on cumulative effects.

Candidates

A total of 26,000 acres throughout the resource area shall remain available for disposal. Approximately 75% of these or 19,500 acres are actually expected to be disposed. Approximately 10% of the acreage transferred to the private sector may be developed with roads, buildings, etc. This could result in the permanent loss of 1,950 acres of potential habitat.

Approximately of 196,000 acres of private land have been identified for potential acquisition. Emphasis will be placed on acquisition of high resource value lands within ACECs, NCLWMAs, WSAs, WSRs, and threatened and endangered species conservation areas for listed species. Acquisition of lands with listed or sensitive plant species will benefit these species by providing additional protection.

Annual Saltbush. Refer to Alternative 1 for a discussion of the effects of grazing. Designation of Carrizo, Lokern, Alkali Sinks, and Buena Vista Valley as ACECs may provide important recovery habitat for the three species of annual saltbush. Continued acquisition within ACECs and threatened and endangered species conservation areas will help promote the recovery of these species.

Alkali Mariposa Lily. Alkali mariposa lily occurs within the Cyrus Canyon grazing allotment. In Alternative 2, the season of use for this allotment is December 1 to March 31

and the minimum mulch level is 500 pounds per acre. Alkali mariposa lily blooms usually between April and June. Although the season of use will not completely avoid the growing season of the alkali mariposa lily, livestock will be removed from the allotment in time to allow flowering and seed set in most years. Vegetative plants may be consumed or trampled and prevented from producing flowers. The higher mulch level of this alternative may lessen the impacts from trampling and direct herbivory. Designation of the Kernville Hot Springs as an ACEC will provide protection to Alkali mariposa lily as grazing would not be allowed in riparian areas or populations of the species. No water diversions will be allowed in the ACEC. Alkali mariposa lily occurs on public land near the town of Lake Isabella that is frequently grazed without authorization. Acquisition within the Lake Isabella area may contribute to the recovery of the species if suitable habitat is acquired. Adjacent to the public land parcel in Cyrus Canyon is a heavy OHV use area. OHV activity may seriously impact alkali mariposa lily.

Kelso Creek Monkeyflower. The mulch level would be maintained at 500 lbs/acre in the Airport grazing allotment. The utilization rate on perennial species within the Kelso Peak allotment would be 40% of current year's growth in Alternative 2. Impacts from grazing under this alternative should be minimal since the effective season of use would be short. Designation of Kernville Hot Springs as an ACEC may benefit Kelso Creek monkeyflower. Adjacent to the public land parcel in Cyrus Canyon is a heavy OHV use area. OHV activity may seriously impact Kelso Creek monkeyflower.

Recurved Larkspur. The effects of grazing under this alternative would be the same as those described for Alternative 1. Designation of Carrizo Plain and Alkali Sinks as ACECs along with the continuation of the Goose Lake ACEC will aid in the recovery of the species.

Oval-Leaved Snapdragon. Designation of both the Carrizo Plain, including the Caliente Mountain range, and Bluestone Ridge as ACECs will aid in the recovery of oval-leaved snapdragon. These areas would be closed to oil and gas leasing. Impacts from oil and gas exploration may still occur.

Impacts from grazing within the CPNA would be the same as those described for Alternative 1. All 39,432 acres in allotments outside of the CPNA would have a spring season of use and a minimum mulch level of either 500 or 700 lbs/acre. Oval-leaved snapdragon should not be adversely affected by grazing under this alternative.

Forked Fiddleneck. Impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through added protection and acquisition of additional habitat.

Hollisteria. Impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through added protection and acquisition of additional habitat.

Jared's Pepper-grass. Impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through added protection and acquisition of additional habitat.

Owen's Peak Lomatium. Designation of the Walker Pass area as an ACEC may benefit the species through added protection and acquisition of additional habitat.

Mouse Buckwheat. The impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of the North Fork Kaweah area as an ACEC may benefit the species through added protection and acquisition of additional habitat.

Piute Mountains Jewelflower. The season of use for Bald Eagle Peak allotment under this alternative would be December 1 to March 31.

This season of use should avoid the flowering period of the Piute Mountains jewelflower in most years. Vegetative plants may be consumed or trampled and prevented from producing flowers. Since most species within the Crucifer family are palatable, it is expected that grazing may have a moderate adverse effect upon this species. The minimum mulch level of 500 lbs/acre may help to lesson damage from direct herbivory. Designation of Erskine Creek as an ACEC will benefit the species through greater protection. Continuation of the Piute Cypress ACEC will also benefit the species.

Nine Mile Canyon Phacelia. The impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Walker Pass and Chimney Peak/Lamont Meadow as ACECs may aid in the recovery of the species through added protection and acquisition of additional habitat.

Cumulative Impacts: Candidate Species

See Alternative 1 for a discussion on the cumulative effects on the candidate species.

Sensitive Plant Communities

Valley Saltbush Scrub. Impacts from grazing within the CPNA would be the same as those described for Alternative 1. This alternative would require that a minimum mulch level of 700 lb/acre be maintained at all times within allotments in listed species ranges outside of the CPNA. This alternative would allow for up to 20% utilization of the current years growth of saltbush. Only green season of use will be allowed in saltbush areas. Part or all of 13 allotments totalling 41,821 acres contain saltbush and will be grazed according to the above guidelines. Because there are other restrictions for grazing allotments within the listed species habitat, part or all of 16 allotments with saltbush, totalling 23,308 acres will not be grazed at all. Approximately 31% of the allotments containing saltbush will not be grazed. In addition to allotments with large areas of saltbush there are six other allotments totalling 4,975 acres which have small patches of saltbush. All are considered annual forage allotments; but since they are within the listed species range, they will have a maximum perennial utilization rate of 20% of the current year's growth. Under this alternative 4,975 acres within allotments with patches of saltbush will be grazed during the green season with a minimum mulch level of 700 lbs/acre. In this alternative 400 acres of saltbush within allotments would not be grazed.

During years of drought or drought recovery, due to the amount of annual precipitation, the timing of the precipitation received, and the duration of the period with below normal precipitation, mulch levels may be increased, and utilization levels on perennials may be decreased. When research, monitoring, or observations indicate plant or animal stress due to existing or recent drought, grazing authorizations will be temporarily modified, and at least one season of reduced grazing will be implemented. During saltbush recruitment years, when many new seedlings are observed, temporary modifications to grazing authorizations may be implemented for a period up to one full growing season to assist in seedling establishment. Temporary modification may include suspension of grazing for one year.

This alternative should allow for the continuation of saltbush in allotments with large areas of saltbush and for the recovery of saltbush in areas that have already seen a decline. Regeneration of saltbush may be enhanced by the drought recovery provisions.

Oak Woodland. The two allotments with oaks that are classified as perennial/annual range (Case Mountain and Wagy Flat) would be managed with a minimum mulch level of 500 lbs/acre and a perennial utilization rate of 40% of the current year's growth. In this alternative, any perennial species within annual forage allotments would also have a maximum total utilization rate of 40% of the current year's growth. This figure includes utilization by

livestock and wildlife. All allotments would be managed for a minimum mulch level of either 500 lbs/acre or 700 lbs/acre. All allotments would have a spring season of use. The 33 allotments classified as annual range in this alternative total 58,832 acres. Most impacts to oaks would be avoided under this alternative. Grazing may result in the loss of individual seedlings but oak regeneration should occur with other forage available.

Valley Sink Scrub. In this alternative nearly all the known valley sink scrub within the resource area will be included within the Carrizo Plain, Lokern, Goose Lake, and Alkali Sinks ACECs. This alternative would protect all known valley sink scrub from any impacting Bureau authorized activity. Federal parcels may be adversely affected by activities on adjacent private lands, such as pesticide drift and unauthorized encroachment from agriculture.

Joshua Tree Woodland. The impacts from disposal of Federal lands would be the same as those described for Alternative 1.

Designation of the Walker Pass area as an ACEC should benefit Joshua tree woodland. There are 2,900 acres of moderate potential sand and gravel areas within the proposed ACEC. These areas would be managed to benefit Joshua tree woodland under this alternative. It is estimated that 140 acres of Joshua tree woodland and desert scrub will be eliminated by mining activities within the entire Lake Isabella area.

The impacts from grazing under this alternative are similar to those described for Alternative 1. In this alternative all allotments will have a green season of use.

Giant Sequoia Forest. Case Mountain would be designated as an ACEC under this alternative. Public access to the Case Mountain ACEC would be provided by permit only. After visitors have reached a parking area, only foot travel would be allowed. This would limit the number of visitors to the area and would minimize the likelihood of human induced impacts such as soil compaction, soil erosion, and fire. The impacts from grazing under this alternative should be the same as those described for Alternative 1, although grazing would only be allowed within the Case Mountain allotment from December 1 to May 31 under this alternative. Grazing prescriptions would be adjusted or terminated within sequoias if grazing is found to have a negative effect upon the plant community.

Water Resources

The Resource Protection Alternative, as implied, is the most beneficial management option for water resource development and protection. The same random event exceptions mentioned under the No Action Alternative, i.e. wild fire and hazardous materials mishaps, pose a potential threat. However, nonpoint pollution is the primary threat and impact to water quality. The reader is referred to Alternative 1 for an in depth discussion of that topic.

Less acres (26,000) are available for disposal under the Resource Protection Alternative than under the No Action Alternative (40,000), thus more lands, potentially, would remain under the protection of the Federal government, where Best Management Practices (BMPs) are implemented to curtail nonpoint pollution. Refer to the discussion under the No Action Alternative.

In the same manner, the higher emphasis on acquisition of other lands, under this alternative, allows for extended protection and stabilization of lands, and thus benefits to water resources.

More restrictive grazing practices, including lower percentages of allowable perennial utilization and higher mulch level requirements in threatened and endangered species range, along with fewer lands subject to grazing (284,000 acres), would serve to improve and stabilize watershed conditions. Overall, the impacts due to grazing would be minimal even when other effects mentioned under the No Action Alternative are considered, since the

mitigation practices implemented would serve to protect and enhance watersheds.

Other potential impacts, such as herbicide use, mining (solids or fluids) etc., pose a potential threat, but likely the impact is not significant. The reader is referred to the No Action Alternative for in depth discussion.

Increased riparian zone protection is realized under the Resource Protection Alternative because of the emphasis on designated and expanded ACECs, WSAs and wild and scenic rivers. In conjunction with stabilized watersheds, as well as in-place and proposed monitoring and projects, no significant impacts are expected, barring high order flood events. Refer to Alternative 1 for further discussion.

Recreation impacts to water quality under the Resource Protection Alternative are as described under the No Action Alternative. Impacts are potentially significant due to OHV use.

Likewise, wild and prescribed fires, subject to random events, can have devastating effects on water quality and contribute to the nonpoint pollution problem. The discussion on these effects is detailed under the No Action Alternative.

Conclusion. Barring unforeseen major fire events and high order hydrologic events, overall water quality impacts due to Bureau management and operations are expected to be minimal. However, a source of nonpoint pollution threatens all watersheds, in the form of excess sediment production. This is due to the drought underway at the time this analysis was prepared. Aforementioned controls and mitigation measures proposed to restore grazing lands, would minimize potential impacts. Regulations enforced and imposed on mining minimize impacts. Impacts from grazing and riparian management are expected to improve, and thus minimize impacts to water resources. Air regulations will have an indirect effect of curtailing impacts to water from OHVs because of the requirements that will regulate and stabilize OHV use areas. In short, this alternative would have the most beneficial effect to water resources. Long range predictions are even more optimistic, with the acquisition and management of riparian zones, the dedication of some rivers as wild &/or scenic rivers, and the stabilization of watersheds (grazed and ungrazed), water quality and quantity effects are expected to improve.

Wildlife

Federally Listed Species

Blunt-nosed Leopard Lizard (FE/CE). Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 200,047 acres of blunt-nosed leopard lizard habitat will be grazed by livestock. On 129,419 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1.

On 70,628 acres outside the Carrizo Plain Natural Area, livestock grazing within potential blunt-nosed leopard lizard habitat will be managed to maintain >700 pounds of mulch per acre during the grazing season, <20% utilization on saltbush, and <40% on other perennial species. These areas would be grazed only from December 1 to April 1. During years of drought or drought recovery, due to the amount of annual precipitation, the timing of the precipitation received, and the duration of the period with below normal precipitation, mulch levels may be increased, and utilization levels on perennial species may be decreased. When research, monitoring or observations indicate plant or animal stress due to existing or recent drought, grazing authorizations will be temporarily modified, and at least one season of reduced grazing will be implemented. During saltbush recruitment years, when many new seedings are observed, temporary modifications to grazing authorizations may be implemented for a period up to one full growing season to assist

in seedling establishment. Temporary modification may include suspension of grazing for one year. Moderate grazing leaves an average of 2 inches of unused plant matter, and the residual dry matter ranges from 400 to 700 pounds per acre (Clawson et al., 1982). This results in a patchy appearance, with little bare soil (Clawson et al., 1982). Based on this description, a mulch level of 700 pounds is not expected to hamper lizard movements. Grazing saltbush scrub only from December 1 to May 30, and not exceeding 20% utilization on perennial species is expected to provide sufficient cover for lizards and prey species. Temporary modifications during saltbush recruitment years, including suspension of grazing for one growing season, is expected to promote saltbush regeneration.

On 4,975 acres outside of Carrizo, small patches of saltbush would be grazed not to exceed 20% utilization. These areas would only be grazed from December 1 to April 1. Grazing small patches of saltbush under this prescription is expected to be compatible with species habitat requirements.

Grazing will be discontinued on approximately 24,316 acres of blunt-nosed leopard lizard habitat. Light grazing leaves an average of 3 inches or more of unused plant matter, and the residual dry matter is more than an average of 800 pounds per acre (Clawson et al., 1982). This results in little or no patchy appearance (Clawson et al., 1982). Bartolome et al. (1980) indicated that site production in the Kettleman Hills and Temblor Range for a given year may be well below 1,120 kg/ha (996 pounds per acre). In dry years at the San Joaquin Experimental Range, with precipitation between 12 and 16 inches, Bently and Talbot (1951), found herbage production between 1,200 and 1,500 pounds per acre. It is estimated that mulch levels in ungrazed areas within blunt-nosed leopard lizard habitat will typically not range above 900 to 1,000 pounds per acre. Residual mulch levels that typically do not exceed 900 to 1,000 pounds and result in an average of 3 inches of unused plant matter, may impede lizard movement, but are not expected to have a significant effect. Survivorship in open areas, where lizards can move easily but have little cover, and less open areas, where lizards may have impeded movement but more concealment cover, may be about the same (Dave Germano, 1991).

The effects of oil and gas development, oil and gas leasing and spraying of malathion would be the same as the effects described for Alternative 1.

Mineral extraction, including gypsum, diatomaceous (siliceous) shale, oil shale, and sand and gravel is expected to continue on 1,000 acres of listed species habitat. New development may include between 490 acres and 900 acres of listed species habitat. These activities are often related to oil and gas development and are within or adjacent to existing oilfields. Two large diatomaceous shale mines covering 1,000 acres, occur in marginal blunt-nosed leopard lizard habitat.

Within potential listed species habitat, approximately 4,000 acres will be available for potential disposal. Each parcel would be analyzed as required by NEPA. Under this alternative, if parcels are found to support significant resources, including listed species habitat, they will be retained.

Continued ACEC designation for Chico Martinez, and designation of Carrizo, Lokern, Kettleman Hills, Buena Vista and Bittercreek as ACEC's will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service, and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species, will contribute to the eventual down-listing of the species in the long-term.

Conclusion. Grazing at a moderate level and discontinuation of grazing, are expected to be compatible with blunt-nosed leopard lizard habitat requirements. Continued development and operation of existing oil and gas fields may result in the eventual loss of some blunt-nosed leopard lizard populations in these

ACEC's Expected to Significantly Benefit Wildlife or Wildlife Habitat					
ACEC's	Federally Listed Species	Special Status Species	High Economic or Recreation Value Species	Aquatic, Wetland or Riparian Habitat	Significant Populations
California Rocks & Islands				X	
Cypress Mountain					X
Frog Pond Mountain				X	
Pt. Sal				X	X
Salinas River				X	X
Tierra Redonda					X
Alkali Sink	X				
Bittercreek	X				X
Blue Stone Ridge					X
Buena Vista	X	X			X
Carrizo	X	X	X	X	X
Chico Martinez	X	X			X
Goose Lake	X				
Kettleman Hills	X	X			X
Lokern	X	X			X
Blue Ridge	X		X		X
Case Mountain			X		X
Chimney Peak/Lamont Meadow			X	X	X
Deer Spring			X	X	
Erskine Creek			X	X	X
Kernville Hotsprings				X	X
Keyesville Historic Mining Area			X	X	X
North Fork of the Kaweah River			X	X	
Walker Pass		X	X	X	X

Table 28

areas, and negatively affect recovery of blunt-nosed leopard lizards. Issuing leases for oil and gas development may remove and reduce the quality of listed species habitat. Non-oil and gas mineral extraction may contribute to the loss of some lizard populations within and adjacent to existing oilfields. Spraying of malathion may have adverse effects to lizards and lizard prey species. Parcels supporting listed species habitat will be retained. Continuation of ACEC's and designation of new ACEC's are expected to contribute to securing lands important in the recovery of the species, and contribute to the eventual down-listing of the species in the long-term.

California Condor. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative all designated critical condor habitat, 4,140 acres, will be retained. Potential disposal of 640 acres of essential habitat will be considered only after Formal Consultation with the U.S. Fish and Wildlife Service. At least 65,450 acres of essential habitat will be retained. Approximately 2,000 acres of public land adjacent to the Andean condor use area near Hopper Mountain will also be retained.

The effects of oil and gas development would be the same as the effects described for Alternative 1.

Continued ACEC designation for Blue Ridge, and designation of Carrizo and Bittercreek as ACEC's will contribute to securing lands important for the recovery of the species.

Conclusion. All critical condor habitat and land near Hopper Mountain will be retained. Some essential condor habitat may be disposed. Continued oil and gas development at Sespe may have negative impacts to the condor release program. Continued designation of one ACEC and designation of two new ACEC's will contribute to securing lands important for recovery of the species.

Giant Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 200,206 acres of giant kangaroo rat habitat will be grazed by livestock. On 129,419 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 89,528 acres outside the Carrizo Plain Natural Area, livestock grazing will be similar to that described for blunt-nosed leopard lizards outside the Carrizo Plain Natural Area. Approximately 129,419 acres within the Carrizo Plain Natural Area will not be grazed from April 1 to June 15. In addition, 3,864 acres known to be occupied by giant kangaroo rats and 66,923 acres of potential habitat outside the Carrizo Plain Natural Area will not be grazed from April 1 to June 15. Grazing under this alternative is expected to be compatible with giant kangaroo rat habitat requirements.

Grazing will be discontinued on approximately 22,173 acres of giant kangaroo rat habitat. The increase in shrub cover, and the expected mulch levels in ungrazed areas, is expected to be compatible with giant kangaroo habitat requirements.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Impacts from disposal are similar to those described for the blunt-nosed leopard lizard.

Designation of Carrizo, Lokern, Kettleman Hills, Buena Vista and Bittercreek as ACEC's will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service, and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species will contribute to the eventual downlisting of the species in the long-term.

Conclusion. Grazing at a moderate level and discontinuation of grazing are expected to be compatible with giant kangaroo rat habitat requirements. Continued development and operation of existing oil and gas fields may contribute to the eventual loss of some giant kangaroo rat populations in the Buena Vista area. Issuing leases for oil and gas development may remove and reduce the quality of listed species habitat. Parcels supporting listed species habitat will be retained. Designation of five new ACEC's is expected to contribute to securing lands important in the recovery of the species, and contribute to the eventual down-listing of the species in the long-term.

Tipton Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Grazing will be discontinued on approximately

12,980 acres of Tipton kangaroo rat habitat. It is unknown how discontinuation of grazing will affect Tipton kangaroo rats.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Approximately 20 acres with potential to support Tipton kangaroo rat are identified for potential disposal. Under this alternative, parcels determined to support Tipton kangaroo rats or to be important in the recovery of the species will be retained.

Continued ACEC designation for Goose Lake and ACEC designation for Lokern and Alkali Sinks will contribute to securing lands important in the recovery of the species. ACEC designation and the attendant increase in management is expected to reduce the level of unauthorized activities on these scattered parcels. Acquisition by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species, will contribute to the eventual down-listing of the species in the long-term.

Conclusion. It is unknown how discontinuation of grazing will affect Tipton kangaroo rats. Continued development and operation of existing oil and gas fields may contribute to the eventual loss of some Tipton kangaroo rat populations in the Buena Vista Valley. Issuing leases for oil and gas development may remove and reduce the quantity and quality of listed species habitat. Parcels determined to support Tipton kangaroo rats or to be important in the recovery of the species will be retained. Continued designation of one ACEC and designation of two new ACEC's are expected to contribute to securing lands important in the recovery of the species, and contribute to the eventual down-listing of the species in the long-term.

San Joaquin Kit Fox. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 216,607 acres of San Joaquin kit fox habitat will be grazed by livestock. On 129,419 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 87,188 acres outside the Carrizo Plain Natural Area, livestock grazing will be similar to that described for blunt-nosed leopard lizards outside the Carrizo Plain Natural Area. The proposed level of grazing is expected to be compatible with kit fox and kit fox prey species habitat requirements.

Grazing will be discontinued on approximately 24,316 acres of kit fox habitat. Discontinuation of grazing is expected to be compatible with kit fox and kit fox prey species habitat requirements.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Impacts from disposal are similar to those described for the blunt-nosed leopard lizard.

Continued ACEC designation for Chico Martinez, and ACEC designation for Carrizo, Lokern, Kettleman Hills, Buena Vista and Bittercreek will contribute to securing lands important in the recovery of the species. Acquisition, by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species, will contribute to the eventual downlisting of the species in the long-term.

Conclusion. Grazing at a moderate level and discontinuation of grazing are expected to be compatible with San Joaquin kit fox and kit fox prey species habitat requirements. Progression from low and moderately developed oilfields to heavily developed oilfields may eliminate kit fox from certain areas. Issuing leases for oil and gas

development may result in removal and reduction in the quality of listed species habitat. Continued designation of one existing ACEC and designation of five new ACECs are expected to contribute to securing lands important in the recovery of the species, and contribute to the eventual down-listing of the species in the long-term.

Kern Primrose Sphinx Moth. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 12,897 acres of Kern primrose sphinx moth habitat will be grazed by livestock. Grazing in sphinx moth habitat will be similar to that described for blunt-nosed leopard lizards outside the Carrizo Plain Natural Area. Mulch levels of 700 pounds per acre are not expected to favor filaree. The proposed level of grazing is expected to be compatible with sphinx moth habitat requirements.

Grazing will be discontinued on approximately 310 acres of sphinx moth habitat. Discontinuation of grazing is expected to be compatible with sphinx moth habitat requirements. Discontinuation of grazing would result in higher mulch levels and is expected not to favor filaree.

Approximately 5,000 acres of potential habitat for the moth is identified for possible disposal. Under this alternative, parcels determined to be important in the recovery of the sphinx moth would be retained.

Conclusion. Grazing at a moderate level and discontinuation of grazing may promote recovery by not favoring filaree. Parcels determined to be important in the recovery of the sphinx moth will be retained.

Cumulative Impacts: Federally Listed Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute significantly toward reducing the likelihood that these species will become extinct in the short-term. Bureau actions may also significantly contribute toward recovery of the species in the long term.

Special Status Species

San Joaquin Antelope Squirrel. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 206,893 acres of San Joaquin antelope squirrel habitat will be grazed by livestock. On 129,419 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 77,474 acres outside the Carrizo Plain Natural Area, livestock grazing will be similar to that described for blunt-nosed leopard lizards outside the Carrizo Plain Natural Area. The proposed level of grazing is expected to be compatible with antelope squirrel habitat requirements.

Grazing will be discontinued on approximately 24,316 acres of antelope squirrel habitat. Discontinuation of grazing is expected to be compatible with antelope squirrel habitat requirements.

The effects of road maintenance would be the same as the effects described for Alternative 1.

Continued ACEC designation for Chico Martinez, and ACEC designation for Carrizo, Lokern, Kettleman Hills, and Buena Vista will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species, will contribute to the eventual downlisting of the species in the long-term.

h differs only slightly from Alternative 2 for water resource development and protection. The same random events described under Alternative 1 - wild fire and hazardous

materials mishaps, apply here as well. However, nonpoint pollution is the primary threat and impact to water quality. The reader is referred to Alternative 2 for greater detail.

The amount of lands (53,000 ac) available for disposal under this alternative is in the middle range compared to all other alternative proposals. The potential for nonpoint pollution increases with disposal, as these lands are no longer guaranteed protection by BLM implementation of Best Management Practices, which serve to mitigate soil resource losses and impacts to water quality. Refer to the discussion under the No Action Alternative.

Acquisition of lands and an allowance for new allotments could result in impacts similar to those described under the No Action Alternative. Range management practices are as described for the Administrative Adjustment alternative. Proposed protection under this alternative would be an improvement over the No Action Alternative, but would not vary significantly. The impact to water resources are expected to be marginal, as described for Alternative 1.

Potential impacts such as herbicide use, mining (solids or fluids), and hazardous material mishaps pose a potential threat, but likely the impact is not significant. The reader is referred to the No Action Alternative for an in-depth discussion.

Riparian zone management, acquisition and protection is similar to that proposed under the Resource Protection Alternative with a slight de-emphasis on designated and expanded ACECs, WSAs and wild and scenic rivers. However, in conjunction with stabilized watersheds, in-place and proposed monitoring and projects, no significant impacts are expected, barring high order flood events. Refer to Alternative 1 for further discussion.

Fire and recreation impacts to water quality or recent drought, grazing authorizations will be temporarily modified, and at least one season of reduced grazing will be implemented.

Approximately 9,000 acres within potential Mojave ground squirrel habitat have a moderate to high potential for sand and gravel, and fill material. Approximately 2,900 acres are within the Walker Pass ACEC, where mineral extraction will be required to avoid Joshua Tree Woodlands. Approximately 140 acres of potential Mojave ground squirrel habitat may be removed by sand and gravel, and fill excavation.

Designation of the Walker Pass ACEC and acquisition of lands in the South Sierra Cooperative Management Area will contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level is expected to be compatible with Mojave ground squirrel habitat requirements. Parcels determined to be important habitat will be retained. Mineral extraction activities may adversely affect the species. Designation of one ACEC and acquisition of lands in the South Sierra Cooperative Management Area will benefit the species.

Short-nosed Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 198,433 acres of short-nosed kangaroo rat habitat will be grazed by livestock. On 129,419 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 69,014 acres outside the Carrizo Plain Natural Area, livestock grazing will be similar to that described for blunt-nosed leopard lizards outside the Carrizo Plain Natural Area. Livestock grazing is expected to be compatible with short-nosed kangaroo rat habitat requirements.

Grazing will be discontinued on approximately 23,661 acres of short-nosed kangaroo rat habitat. It is unknown how discontinuation of grazing will affect the short-nosed kangaroo rat.

Continued ACEC designation for Chico Martinez, and ACEC designation for Carrizo, Lokern, Kettleman and Buena Vista will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species, will contribute to the eventual downlisting of the species in the long-term.

Conclusion. Grazing at a moderate level is expected to be compatible with short-nosed kangaroo rat habitat requirements. It is unknown how discontinuation of grazing will affect short-nosed kangaroo rats. Continued designation of one existing ACEC and designation of four new ACECs are expected to contribute to securing lands important in the recovery of the species, and prevent the need for listing of the species in the long-term.

Mountain Plover. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 162,355 acres of potential mountain plover habitat will be grazed by livestock. On 120,261 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 37,940 acres outside the Carrizo Plain Natural Area grazing in mountain plover habitat will be similar to that described for blunt-nosed leopard lizard habitat and is expected to be compatible with mountain plover habitat requirements. On the remaining 4,154 acres, grazing will be managed to maintain >500 pounds of mulch per acre and <400% utilization on perennial species.

Grazing will be discontinued on approximately 23,836 acres of mountain plover habitat. Discontinuation of grazing is expected to be compatible with plover habitat requirements for most years. During a prolonged series of wet, high mulch years discontinuation of grazing may not be compatible with plover habitat requirements.

Continued ACEC designation for Chico Martinez and ACEC designation of Carrizo, Lokern, Kettleman and Buena Vista will contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level is expected to be compatible with mountain plover habitat requirements. Discontinuation of grazing is expected to be compatible with plover habitat requirements for most years. Discontinuation of grazing during a prolonged series of wet, high mulch years may not be compatible with plover habitat requirements. Continued designation of one existing ACEC and designation of four new ACECs are expected to contribute to securing lands important in the recovery of the species.

LeConte's Thrasher. Refer to Alternative 1 for a discussion of the status of this species.

Under this alternative, approximately 230,513 acres of LeConte's thrasher habitat will be grazed by livestock. On 94,973 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described under Alternative 1. On 56,951 acres, grazing in LeConte's thrasher habitat will be similar to that described for blunt-nosed leopard lizard habitat outside the Carrizo Plain Natural Area and is expected to be compatible with LeConte's thrasher habitat requirements. On the remaining 78,589 acres, the effects of livestock grazing would be the same as the effects described under Alternative 1.

Grazing will be discontinued on approximately 22,103 acres of LeConte's thrasher habitat. Discontinuation of grazing is expected to be compatible with LeConte's thrasher habitat requirements.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Continued ACEC designation for Chico Martinez and ACEC designation of Carrizo, Lokern, Kettleman and Buena Vista will

contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level is expected to be compatible with LeConte's thrasher habitat requirements. Discontinuation of grazing is also expected to be compatible with LeConte's thrasher habitat requirements. Continued designation of one existing ACEC and designation of four new ACECs are expected to contribute to securing lands important in the recovery of the species.

Cumulative Impacts: Special Status Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward reducing the likelihood that some of these species will become Federally listed in the short-term. Bureau actions may also make a significant contribution to preventing most of the species from becoming Federally listed in the long term.

High Economic or Recreation Value Species

Refer to Alternative 1 for a discussion of the current status of these species.

The effects of livestock grazing on the Long Valley segment of the Monache deer herd would be the same as the effects described for Alternative 1, except that all areas would be managed to maintain <40% utilization on perennial species.

Under this alternative, approximately 17,830 acres within the Kaweah Deer Herd Range will be grazed by livestock. Approximately 5,650 acres will be managed to maintain >700 pounds of mulch and 12,170 acres to maintain >500 pounds of mulch. All areas (17,830 acres) will be managed to not exceed 40% utilization on perennial species. All areas containing oaks will be grazed not to exceed 40% utilization, and grazing would be confined to the late winter and spring.

Approximately 385,295 acres of resident deer habitat, as well as habitat of other resident game species such as quail and chukar, will be grazed by livestock. On 99,373 acres within the Carrizo Plain Natural Area and 107,280 acres within the Walker Pass CRMP area, the effects of grazing will be similar to that described for Alternative 1. On 89,357 acres, grazing will be similar to that described for blunt-nosed leopard lizard habitat outside the Carrizo Plain Natural Area.

The remaining 89,289 acres will be managed to maintain >500 pounds of mulch and not to exceed 40% utilization on perennial species. These areas will only be grazed from December 1 to May 31. Grazing under this alternative is expected to be compatible with resident game species habitat requirements.

Continued ACEC designation for Blue Ridge and ACEC designation for Carrizo, Case Mountain, Walker Pass, Keyesville, Deer Spring, Chimney Peak, Erskine Creek, and North Fork of the Kaweah is expected to provide habitat conditions that will benefit resident and migratory game species. Continued designation of the Monache-Walker Pass, Temblor and Caliente National Cooperative Land and Wildlife Management Areas is also expected to provide habitat conditions that will benefit resident and migratory game species.

Conclusion. Grazing at a moderate level is expected to be compatible with migratory and resident game species habitat. Continued designation of one ACEC and three National Cooperative Land and Wildlife Management Areas, and designation of eight new ACECs are expected to benefit migratory and resident game species.

Cumulative Impacts: High Economic or Recreation Value Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may

contribute significantly toward meeting the habitat requirements to maintain sufficient populations of game species.

Aquatic, Wetland or Riparian Habitat

Refer to Alternative 1 for a discussion of the current status of these habitat types.

Under this alternative for 19.9 miles of inventoried reach, grazing will be confined to the green season. Approximately 41 miles of inventoried reach will be grazed outside the green season. Approximately 9.1 miles of inventoried reach will be grazed not to exceed 20% utilization on riparian shrubs and 40% on riparian grasses. Approximately 7.7 miles of inventoried reach will be grazed not to exceed 40% utilization on perennial species and 39.9 miles not to exceed 50%. Approximately 3 miles of inventoried reach will be grazed with no maximum utilization level on perennial species.

Under this alternative, for 319 inventoried springs, grazing will be confined to the green season. Approximately 288 springs will be grazed outside the green season. Approximately 288 inventoried springs will be grazed not to exceed 20% utilization on riparian shrubs and 40% utilization on riparian grasses. One inventoried spring within the Carrizo Plain Natural Area, will be grazed not to exceed 20% utilization on perennial species. Grazing on approximately 206 springs will not exceed 40% utilization on perennial species, and at 90 springs will not exceed 50%. There will be no maximum utilization level on perennial species at approximately 22 springs.

Under this alternative approximately 100 acres with potential riparian resources have been identified for potential disposal. Parcels with riparian resources will be retained.

Designation of Salinas River, Frog Pond Mountain, Carrizo, Walker Pass, Keyesville, Deer Spring, Chimney Peak, Kernville Hot Springs, Erskine Creek and North Fork of the Kaweah as ACECs are expected to benefit riparian and wetland habitats.

Continued designation of the Pt. Sal and Rocks and Islands ACECs is expected to benefit intertidal habitat found there.

Conclusion. Livestock grazing is expected to be compatible with riparian resources on most allotments. Parcels determined to support riparian resources will be retained. Continued designation of two ACEC's and designation of ten new ACEC's is expected to benefit riparian, wetland and intertidal habitat.

Cumulative Impacts: Aquatic, Wetland or Riparian Habitats

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward the improvement in overall quality of riparian habitats and may increase the amount of protected riparian habitats.

Significant Populations

Raptors. Refer to Alternative 1 for a discussion of the status of these species.

Continued ACEC designation for Chico Martinez and Blue Ridge, and ACEC designation for Tierra Redonda, Carrizo, Lokern, Blue Stone Ridge, Kettleman, Buena Vista, Case Mountain, Bittercreek, Chimney and Erskine Creek are expected to provide habitat conditions benefiting raptor species.

Conclusion. Suitable habitat conditions will continue to be provided on public lands. Continued designation of two ACEC's and designation of ten new ACEC's are expected to benefit raptor species.

Neotropical Migrants. Refer to Alternative 1 for a discussion of the status of these species.

The 18 species which utilize public land during migration may be affected by changes in vegetative structure made possible by the proposed grazing prescription.

Continued ACEC designation for Pt. Sal and

Blue Ridge and ACEC designation for Salinas River, Cypress Mountain, Walker Pass, Keyesville, Kernville Hot Springs and Erskine Creek are expected to provide habitat conditions that will benefit these species.

Conclusion. Livestock grazing and retention of parcels may affect riparian resources used by some neotropical migrants. Parcels determined to support riparian resources will be retained and are expected to benefit neotropical migrants. Continued designation of two ACEC's and designation of six new ACEC's are expected to benefit these species.

Cumulative Impacts: Significant Populations

For a general discussion of cumulative impacts refer to Alternative 1. Under this alternative, Bureau actions may contribute toward improving the quality and quantity of raptor and neotropical migrant nesting, wintering and foraging habitat.

Alternative 3 - Administrative Adjustment

Air Resources

The Administrative Adjustment Alternative will result in significant impacts to air quality from oil and gas activity, and nominal impacts from land disposal/retention and OHV activity. Other categories of activity should have negligible impacts to air resources.

The control of fugitive dust is required only in the San Joaquin Valley Air Basin (SJVAB); South Central Coast Air Basin (SCCAB) requirements are explained under the No Action Alternative.

This alternative has more lands (65,000 acres) available for disposal through sale or exchange than the other alternatives. As in the case of Alternative 1, this would affect the number and miles of roads requiring PM_{10} emission control in the SJVAB. Pollution abatement responsibility would merely be transferred to the receiving landowner, with little or no change in emissions expected. Area wide, impacts to air quality due to fugitive dust are not significant, since the percentage of unpaved roads under Bureau management would still be negligible. Should development occur on lands once they move into private ownership, increased PM_{10} generation would occur. On the basis of acreage offered, a slight to moderate impact is possible. The reader is referred to the No Action Alternative for further discussion.

As in the case of Alternative 2, the Administrative Adjustment Alternative calls for a higher emphasis on the use of Designated Routes of Travel (DROTs) (Appendix H-1). As a result, a reduction of PM_{10} emission levels is realized by reducing travel on some roads and concentrating them on others. Refer to the No Action Alternative for an in depth discussion of the effect of concentrating vehicular travel on specific roads.

Retention and/or acquisition of lands with

roads which fit the criteria as emission sources in the SJVAB will require the implementation of Reasonable Available Control Measures (RACM) and result in reduction of fugitive dust emissions to regulated levels.

Impacts due to mining activity are almost identical to those described under Alternative 2. The potential for increased contribution of PM_{10} is about one third less than the No Action Alternative, with only 23,000 acres available for mineral materials.

Emissions due to fluid mineral activities are comparable to those outlined under the No Action Alternative, with the overall impact being significant.

Impacts due to OHV activity are comparable to the those detailed under Alternative 2, i.e. nominally significant. Refer to the Resource Protection Alternative for further discussion on requirements for staged events which will apply, as well.

No significant impacts to air quality can be expected under the Administrative Adjustment Alternative from forest management practices, noxious weed and pest control, or hazardous materials management. The reader is referred to Alternative 1 for an in depth discussion of the effects.

As in the case of the No Action Alternative, the designation of wilderness areas would result in a nominal positive effect on air quality because of Prevention of Significant Deterioration rule provisions.

Effects on air quality due to wild and/or prescribed fires under the Administrative Adjustment Alternative are not significant. They are the same as explained under the No Action Alternative.

Conclusion. Bureau management under an Administrative Adjustment Alternative would result in measurable impacts to SJVAB and SCCAB air basin quality. Excluding wildfire, which is highly unpredictable, pollutants emanating from Bureau lands/operations are expected to decline and comparatively continue to contribute about the same percent air basin wide, i.e. less than 13% of the emissions from all area oil and gas operations, 15% of the emissions from mining in the region, and an incidental amount from activities that contribute fugitive dust. Cumulative impacts and short term benefits and long range effects are the same as described under the No Action Alternative.

Land Tenure Adjustment

Impacts to Land Tenure Adjustment are the same as those described in Alternative 1, with the following exceptions or additions:

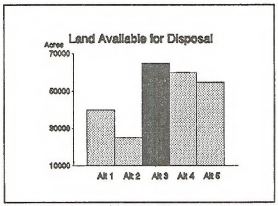


Figure 49

Under this alternative 65,000 acres of public land are available for disposal. It is expected that of these 65,000 acres, approximately 16,250 acres (25%) will be retained in Federal ownership due to environmental considerations. Ninety-five percent (61,750 acres) of the public land considered for disposal will be considered for exchange, but not sale.

Much of the resource area would be unavailable for disposal due to high resource values. This includes 199,000 acres within 19 ACECs, as well as wilderness areas, wilderness study areas and lands within critical condor habitat (88,000 acres). This exceeds the amount identified in Alternative 1 by approximately 236,000 acres.

It is expected that approximately 158,000 acres of land will be acquired in the areas of Chimney Peak/Kennedy Meadows, Case

Mountain, Blue Ridge, and the Carrizo Plain Natural Area. In addition, emphasis will be placed on acquiring lands within ACECs, NCLWMAs, wilderness areas, WSAs, threatened and endangered species conservation areas, and the South Sierra Cooperative Management Area. Under this alternative, it is expected that the 65,000 acres of public land available for disposal would provide enough lands to acquire approximately 40% of the area identified for possible acquisition.

Approximately 409,700 acres of mineral estate are available for oil and gas and geothermal leasing. Livestock grazing is authorized on approximately 396,867 acres (65%) of public land. These uses may delay or constrain the exchange or sale of the affected lands.

Due to the scattered and rural nature of the public lands, the proposed land tenure adjustments would not significantly affect growth and development near urban areas. It is estimated that over a 15-year period, 10% of the lands transferred to the private sector (6,500 acres) would be developed with roads, buildings, etc.

Conclusion. The conclusions for this alternative are the same as those described in Alternative 1, with the following modification: An estimated 48,750 acres of public land may eventually be disposed under this alternative. Most lands with significant resources are unavailable for disposal. Lands available for disposal would provide enough lands to acquire approximately 40% of the area identified for acquisition.

Cumulative Impacts

Cumulative impacts for this alternative are the same as those described in Alternative 1.

Land Use Authorizations

Impacts to Land Use Authorizations are the same as those described in Alternative 1 with the following exceptions or additions:

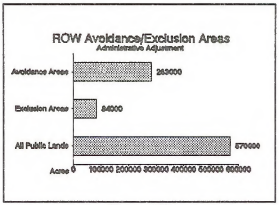


Figure 50

Land Use Authorizations would be constrained on public lands identified as right-of-way exclusion and avoidance areas. Public lands identified for disposal (65,000 acres), 19 ACECs (199,000 acres), the Ker 311, Granite Cave, cultural sites, and Walker Pass NHL, and wild and scenic river study areas (19,000 acres) have been identified as right-of-way avoidance areas. This is an increase of approximately 180,000 acres from those areas identified in Alternative 1 that would be constrained. Wilderness areas and wilderness study areas (84,000 acres) have been identified as right-of-way exclusion areas. Designation of new wind energy sites would be considered on a case-by-case basis, but excluded from wilderness areas, wilderness study areas, ACECs, and Special Recreation Management Areas. Designation of new communication sites would be considered on a case-by-case basis.

Due to the constraints on public lands with high resource values, it is expected that land use applications may decline by 15%. Establishment of right-of-way exclusion and avoidance areas may cause development to increase on private lands, as well as create new routes for power lines and pipelines in order to avoid impacts to the high resource values on public lands.

Designated utility corridors are those existing and occupied corridors delineated in the Western Regional Corridor Study, 1986. These designations would encourage placement of right-of-way facilities within established,

previously disturbed and preferred routes and could decrease the proliferation of roads, pipelines and utility lines. Construction of facilities within utility corridors and previously disturbed areas would be recommended. Use of corridors may cause conflicts among users and increase the costs to applicants if relocation of proposed facilities is necessary.

Conclusion. The conclusions for this alternative are the same as those described in Alternative 1, with the following changes: Land uses would be constrained where right-of-way exclusion and avoidance areas have been identified (366,000 acres). This may also reduce the number of land use applications by 15%. Designation of new utility corridors may reduce the proliferation of rights-of-way.

Cumulative Impacts

The cumulative impacts for this alternative are the same as those described in Alternative 1, except: Due to constraints placed on public lands with high resource values, development may increase on private lands.

Livestock Grazing Management

The elimination of grazing on the known populations of Federally listed plants is the same as described under Alternative 1. Seasonal use restrictions and mulch requirements are also similar to those described for Alternative 1. These restrictions are shown in Figure 51 and described in further detail in Appendix D-2. The implementation of these restrictions would have the same impact as those under Alternative 1.

The impacts from the "green up" requirement and the perennial forage utilization level would generally be the same as those under Alternative 1. The 20% utilization level for saltbush is a large reduction from the 50% level which was prescribed in previous land use plans. This specific utilization level will be applied to all allotments which have saltbush present including 7 allotments which never had utilization constraints applied before. The 50% maximum utilization of current annual year's growth on other perennial forage plants will now be applied to all allotments under this alternative. However, one of these allotments would already have grazing totally suspended due to the guidelines for management proposed for the potential habitat of Federally listed species. The conservative saltbush utilization level proposed under this alternative could result in a loss in site productivity due to less than optimum harvesting by grazing animals.

Range improvement construction could be restricted due to the presence of listed plants or animals. The use of forage on private lands could be indirectly limited due to restrictions on public land grazing use, where the private land is unfenced and intermingled with the public land.

Impacts from the proposed riparian management guidelines on grazing management and the forage resource would be the same as those under Alternative 1, but would now apply to three more allotments.

Impacts from proposed forest management, oil and gas development, and management of the Temblor and Caliente NCLWMAs would be the some as those under Alternative 1.

Proposed management of visual resources, wild, scenic and recreational rivers and areas of critical environmental concern would also have the same impacts to livestock grazing management as detailed under Alternative 1.

The establishment of designated routes of travel for recreational purposes as proposed under this alternative could have beneficial impacts to grazing management as a result of increased restrictions on vehicle use. These beneficial impacts could include lower forage losses from reduced vegetation destruction and erosion, reclamation of roads to be designated as closed, and reduced vehicle/livestock conflicts.

An estimated 61% of lands disposed under this alternative would fall within existing allotments and could result in up to 4,000 AUMs becoming unavailable to the current

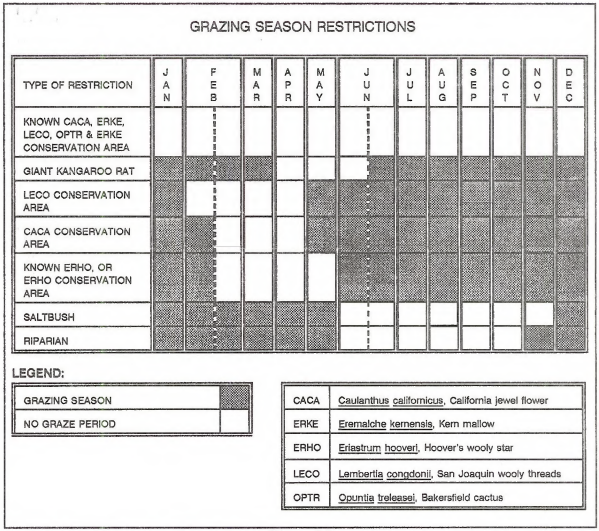


Figure 51

lessee/permittees. It is anticipated that the majority of these disposals will not be made to the current lessee/permittee due to economic constraints. An estimated 39% of lands disposed under this alternative would fall outside existing allotments and would result in an estimated 1,700 AUMs becoming unavailable for grazing lease or permit. The proposed disposal of scattered public land parcels could improve management of any existing private grazing operations which had public land inholdings and prevent costly range improvements needed in order to manage the public land differently than the private lands. The proposed acquisition of up to 158,000 acres of private land could provide an estimated 8,000 AUMs of forage available for livestock grazing, if these parcels were not grazed under previous ownership. If these acquired lands were previously grazed, the grazing use on them could become more restricted than that which was allowed under private ownership. This could result in less forage being available to livestock for grazing. The proposed acquisition of private lands could improve management capabilities on 27 existing grazing allotments by blocking up scattered public parcels and providing opportunities for pasture systems, better livestock distribution through more efficient range improvement design and improved management control within these allotments. Other land use authorizations and transactions such as rights-of-way, withdrawals, access acquisitions, land permits and leases would cause insignificant impacts to grazing

management.

The impacts on grazing management from restrictions to reduce PM_{10} emissions and from proposed fire suppression actions would be the same as those under Alternative 1.

Implementation of the proposed management under this alternative can be accomplished with present funding and staffing. Impacts due to constraints on funding and staffing would be the same as described in Alternative 1.

Conclusion. Impacts of Alternative 3 to grazing management would result in approximately 20% less forage being harvested from public lands. This impact is mainly caused by restrictions required to protect and provide recovery for Federally listed species. Alternative 3 would consequently result in approximately 3,432 acres of public land within existing allotments becoming totally unavailable for livestock grazing. The remaining authorizations would be reduced by at least 16% due to the protection measures for Federally listed species. In addition, 4,774 AUMs within existing allotments would be lost due to land disposals and oil and gas development. The opportunity for providing proper grazing management and increasing its efficiency through range improvement projects would also be slightly limited by Federally listed species restrictions and special land designations proposed in this alternative. Flexibility of grazing management options would be severely impacted on allotments within potential habitat for Federally listed species by the compression of normally allowable seasons into short grazing use periods.

Socio-Economic Impacts

The socio-economic impacts of Alternative 3 would be the same as those under Alternative 1 except for the fact that livestock grazing would only be allowed to utilize up to 20% of the current annual year's growth on saltbush. This conservative utilization level could easily cause the early removal of livestock from a any pasture that contained saltbush. This impact would occur in the Valley Management Area.

Conclusion. Under Alternative 3, there would be no significant impact to grazing operations in the Coast and South Sierra Management Areas. There would be a slight to moderate adverse economic impact (depending on land patterns) to most of the 52 allotments within the Valley Management Area due to management changes needed to protect Federally listed species.

Cumulative Impacts

The implementation of this alternative could result in improve resource conditions from present grazing management in all three management areas due to the application of more conservative forage utilization guidelines. However, the long term resource condition may eventually deteriorate due to the lack of plant growth stimulation caused by light to moderate grazing, especially on saltbush plants. Some plant communities not affected by any other factors (such as fire) may eventually become decadent. The short term benefit of improved condition could also be offset somewhat by the increased complexity that the proposed management guidelines add to grazing management within intermixed public/private lands. Impacts from the loss of management flexibility, seasonal use of adjacent private lands and critical sheep grazing seasons would be the same as described in Alternative 1. Grazing management efficiency in a large portion of the Valley Management Area could be reduced by the construction of fences to separate the private land from public land management.

In part, negative cumulative impacts to grazing management from management restrictions for Federally listed species would be somewhat offset by reduced public and private land use conflicts and increased management efficiency brought about through proposed acquisitions and disposals.

Proposed perennial plant utilization and mulch levels would provide a more dependable and sustainable forage resource for livestock grazing management. Ultimately, increased

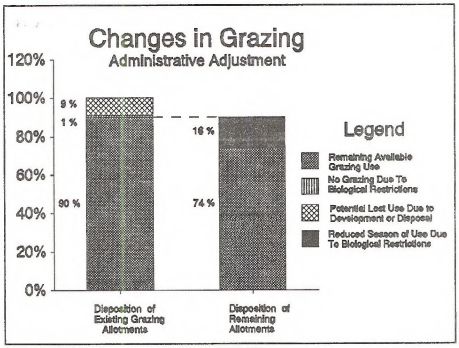


Figure 52

restrictions for listed species and air quality on all land uses would reduce the likelihood that native rangelands would become unavailable for grazing use due to development for other purposes, provided grazing use is not eliminated due to expected grazing impacts to Federally listed species.

Overall impacts to the livestock grazing industry in the Caliente Resource Area would be moderate, considering that the majority of changes in grazing management due to protection measures or recovery efforts for Federally listed species would occur in the Valley Management Area. Additional impacts related to the expense of required new fencing would be the same as described in Alternative 1. The impacts could be slightly reduced by the potential benefits of a more dependable forage resource on public land as a result of the proposed management actions. Restrictions or removal of grazing use on public land could increase the already high demand for California's diminishing native rangeland and could cause increases in the price of private forage sources. This increase could marginally affect the entire livestock industry and even cause higher costs for red meat production in the western United States.

Mineral Resource Development

Under the Administrative Adjustment Alternative, impacts to mineral development from requirements of the Endangered Species Act are expected to be unchanged. The area proposed for wilderness is also unchanged.

The following ACECs with moderate or high mineral potential will be withdrawn or closed to mineral development. Piute-Cypress has moderate potential for gold and other metallic mineral resources. Within the Carrizo Plain ACEC, salt and sodium sulphate solid leasable minerals, have been produced from Soda Lake. The normally dry lake bed contains estimated reserves of at least one million tons of sodium sulphate. About 7,000 acres of the Carrizo Plain ACEC have moderate potential for phosphate. Tierra Redonda Mountain is prospectively valuable for phosphate.

Within the Walker Pass and Chimney Peak ACECs disposals of mineral materials may only be made away from riparian zones, Joshua trees, sensitive plants and cultural resources. This requirement combined with the recommended Owens Peak and Rockhouse Wilderness Study areas, recommended Wild and Scenic River designations, and the Walker Pass National Historic Landmark will effectively close or withdraw much of the area to locatable or salable mineral development. Portions of these ACECs have high to moderate potential for locatable minerals and salable minerals. The only active sand and gravel operation for aggregate in the Lake Isabella area is located in the Walker Pass ACEC within the bed of Canebrake Creek. A portion of this operation is on reserved mineral estate. At this location the creek generally

only carries water during flash floods. Except for the site of the sand and gravel operation, Canebrake Creek is considered eligible for Wild and Scenic River Status. In addition, there are numerous Joshua trees out of the active bed. Expansion of this operation may be hampered if not denied due to these factors.

Conclusion. The acreage of Wilderness, Wilderness Study Areas, habitat of Federally listed species and other restrictions or impediments to mineral resource development which do not change between alternative are discussed in No Action Alternative of the Environmental Consequences.

Management prescriptions for Areas of Critical Environmental Concern will close 1,000 acres to geothermal resource development, 75,000 acres to solid leasable minerals, 12,000 to locatable minerals and 9,000 to salable minerals. In this alternative, about 106,000 acres are VRM class II, which will severely hamper mineral resource development.

Cumulative Impacts

The cumulative impact to mineral development by restrictions, withdrawals and closures proposed in this alternative will be moderate.

Oil and Gas Development

The implementation of the Land Tenure Adjustment Alternative will result in predominantly minor impacts to oil and gas development on lands with high to moderate potential for oil and gas. This alternative specifies the following management on lands with high to moderate oil and gas potential: 2,000 acres of non-discretionary closures, no discretionary closures, 425,000 acres will be available for oil and gas leasing under major constraints, and 53,000 acres available for leasing under standard lease terms. Negligible impacts are expected on the 458,000 acres of land with no or low oil and gas potential. Primary impacts to oil and gas activities are those that affect the cost of exploration, development, and production.

A positive impact, as a consequence of the implementation of this alternative, as stated in Alternative One, is allowing public lands to be offered in regular yearly lease sales. This will be beneficial to the exploration and development of oil and gas in the resource area. Lease sales will result in greater incidence of drilling, the finding of more reserves, and a concomitant increase in Federal revenues from royalties.

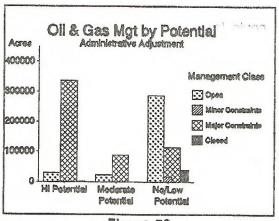


Figure 53

The management of ACECs under the Land Tenure Alternative would result in the discretionary withdrawal of 1,000 acres. These ACECs are generally within areas of low oil and gas potential. Consequently impacts are expected to be nonexistent or minor.

Impacts From Air Quality Management

There is a more complete discussion of impacts from air quality management in Alternative One. The more salient impacts as a result of management actions under Alternative Three are described here.

The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) will require the implementation of Reasonable Available Control Measures to reduce fugitive dust emissions to levels prescribed by regulations. SJVUAPCD figures indicate that less than 5% of these pollutants come from activities related to oil and gas.

BLM may require proof of compliance with local APCD requirements; non-compliance

could lead to delays or even shut down of operations. The cost of compliance to operations and refining is not expected to change. Increased costs may be sustained from delays related to failure to present documentation in a timely fashion.

Impacts to oil and gas development from the air quality management identified under this alternative are expected to be the same as in Alternative One, which are minor at most.

Impacts From Land Use

Impacts from land tenure adjustment are similar to those described under Alternative 1. The minimal impacts described under that alternative would be increased under this alternative, with far more land available for disposal. The retention of mineral estate with high oil and gas potential when land is disposed of would minimize the loss of oil and gas development opportunities. It would, however, create additional split estate lands. Exploration and development on these lands may be delayed and slightly more expensive due to the need to deal with the surface owner in addition to the BLM.

This alternative would result in some lands with moderate to high potential for oil and gas being disposed of or acquired in land exchanges. The disposal and acquisition of tracts in land exchanges will not likely involve mineral estate lands with high potential. Lower potential lands will be subject to exchange or other land tenure adjustment. Some acquisition may occur as a result of compensation for impacts to threatened or endangered species. This in turn facilitates oil and gas development by allowing an action to proceed in sensitive habitat. The identification of lands for acquisition should facilitate this compensation.

The result will be more high potential lands being acquired, though not necessarily the mineral estate under them. Lands with high to moderate oil potential which are also priority areas of land acquisition include the Carrizo Plain and Kettleman Hills. Low to no oil and gas potential lands which are also potential targets for acquisition include Case Mountain, Blue Ridge, Chimney Peak, and the South Fork of the Kern River.

The impacts on oil and gas management from restrictions on land use permits will be similar to those of Alternative One. Emphasis on the use of designated routes of travel could result in some minimal restrictions to placement of facilities, and timing delays for rights of ways, resulting in minor added costs.

Impacts From Threatened & Endangered Species Management

Regular leasing of lands by the BLM could result in the issuance of about 50 new leases per year. Impacts from the controlled surface use stipulation (Stipulation C1 in Appendix G-3) which is proposed for nearly all of the unleased lands with significant oil producing potential in the San Joaquin Valley, will be similar to those of Alternative One. It is expected that development could occur on all of the lease, a portion of the lease, or under the lease from adjacent lands.

The effects of this stipulation are the same as under the No Action Alternative. This stipulation might preclude drilling on some leases if they include large tracts of threatened or endangered species, and if directional drilling is either not an option or would be too expensive. In that case the oil and gas resources could not be fully developed. However, this is expected to be a very rare occurrence. Currently existing leases, including those held by production, are limited by existing terms and conditions, and would be unaffected by any stipulations identified in this plan.

Therefore it is estimated that overall impacts to oil and gas wildcat drilling from management of threatened and endangered species under the Land Tenure Adjustment Alternative will be similar to those of Alternative One: minor to moderate on new leases and negligible on existing leases.

Other Impacts

Impacts to oil and gas by other issues addressed in Alternative One but not addressed above, are similar to those discussed in Alternative One. Negligible increases in impacts over those described in the No Action Alternative are expected in Alternative Three. Impacts will remain minor to moderate, as in Alternative One.

Conclusion. Impacts as a result of implementation of the Land Tenure Adjustment Alternative are similar to those of Alternative One. Resource issues such as air quality, water quality and hazardous materials are expected to impact oil and gas the most. Threatened and endangered species issues will remain as a minor impact as currently managed.

Oil and gas operations will benefit from regular lease sales, without the potential delays which could otherwise occur. Negative impacts in the form of higher costs are expected from management of air quality, recreation, threatened and endangered species, and water issues. Each individually contributes minor impacts; their cumulative impacts may force some small operators out of business due to the currently (1992) depressed local oil and gas economy.

When compared with and added to other factors beyond the scope of this plan which influence oil and gas operations, impacts in the form of costs described earlier will have a total minor impact. Local major oil companies have been going through a process of winnowing or re-evaluating reserves in California; however even minor added costs can result in their pulling more operations out of the resource area. This negatively impacts employment, and leads to a chilling of the local economy.

In the long term the projected scenario of development will ensure continued operations for known and currently unknown reserves. A rapid increase in oil prices would favor rapid development of oil and gas in the Caliente Resource Area, leading to higher employment, and more dynamic local economy. This is not expected however, and the oil and gas industry is expected to continue to be a sluggish economic giant in the Caliente Resource Area.

Cumulative Impacts

The cumulative impacts to the development of oil and gas are varied. External influences and their relationship to this plan as described under the No Action Alternative remain unchanged under this alternative, except as described below.

Impacts from outside this plan have in the past, and will continue in the future, to be the primary forces impacting these lands. As in Alternative One, oil and gas operations in existing fields are expected to have minor impacts from management of threatened and endangered species constraints under the Land Tenure Alternative.

Oil and gas operators must already comply with existing regulations and procedures regarding formation integrity, aquifer protection, and protection of natural drainages and ground surfaces, including those of the BLM. Additional costs due to the implementation of this alternative will be the same as in Alternative One: minimal and the result of ensuring compliance to existing regulations.

As in Alternative One, increased regulations restrict activity on public lands. As a result, nearby or adjacent private lands will undergo greater surface disturbance. Public lands may be avoided in order to run seismic lines, or to directionally drill wells. All such actions will result in greater impacts to private lands.

The result is that under this alternative there may be about 200 APDs will be issued per year, and up to 8 wildcat wells may be drilled annually. Enhanced oil recovery drilling will increase from 4% to 10% a year over the life of the plan. There will be up to 5 Notices of Intent (NOI) for seismic exploration, and 45 to 225 acres of related short-term disturbance per year. There will be up to 770 acres of lands

reclaimed over the life of the plan from all types of disturbance, and up to 2 new fields discovered on Federal lands. Therefore net surface disturbance will be from 1,160 to 3,500 acres.

The net surface disturbance equals less than 1% of the total Federal lands and is a negligible amount of disturbance. Only 13% of oil and gas production and operations is from Federal lands, the remaining 87% encompass private land holdings. The effects to most operators then will be minor, although operators who have large Federal holdings may sustain minor to moderate impacts.

Recreation

Off highway vehicle (OHV) use would be designated as "limited", on most public lands restricting OHV use to designated routes. Closed areas include the Point Sal, Frog Pond Mountain and Blue Ridge ACECs, Short Canyon, and the Machesna and Santa Lucia wilderness areas. No OHV open use areas would be available under this alternative. As unauthorized OHV areas and routes are signed and closed, there would be a loss of this form of recreational opportunity.

The Soda lake - Elkhorn Plains loop road, the Canebrake - Long Valley loop road, and the Kelso Valley Road would be designated as Backcountry Byways. This designation and subsequent publicity would result in an increase in motorized touring recreational use in these areas.

The disposal of up to 65,000 acres of small isolated parcels of public lands would have negligible impacts to recreation use. Most of these parcels have no public access and their use is controlled by the adjacent landowners. Retention of these parcels would not benefit public recreational use or opportunities.

Acquisitions of lands (largely through exchange of the 65,000 acres of isolated parcels) which increase public access would increase recreational opportunities and use. However such benefits could be limited, as public use of most acquired lands would be restricted to protect threatened and endangered species or other special resource values.

Acquisition of public access to the Duck Pond and Goose Lake would benefit birdwatching, environmental education and nature study opportunities in these areas. Non-motorized public access would be acquired to Cypress Mountain, and pedestrian access to Point Sal, which would increase hiking, hunting and related outdoor pursuits in these areas. In addition, public access would be acquired to Case Mountain and Milk Ranch Peak, and an agreement with adjacent landowners for controlled public access to the Chico Martinez ACEC would be developed. This would increase hiking, hunting and related outdoor pursuits in these areas. Public access through Montana de Oro State Park would be provided to the BLM lands north of Coon Creek. Except for providing public access, no additional facilities would be developed for recreational use.

Camping within the 98,300 acre Carrizo Plain ACEC would be restricted to 2 locations. This would result in some loss of dispersed camping opportunities which would primarily affect hunters who camp near their hunting area. Opportunities for dispersed camping would be eliminated on an additional 15,000 acres. A significant reduction in dispersed camping use and opportunities would occur in the Keyesville and North Fork of the Kaweah areas. The three major public use areas on the North Fork of the Kaweah River would be closed to dispersed camping and managed for extensive recreational day use.

The designation of an area for dog trials and a shooting range within the Temblor NCLWMA would benefit organized activities of this type. There are sufficient adjacent public lands to accommodate any other recreational users who might be displaced as a result.

About 7,500 acres would be closed to shooting, which would eliminate hunting and target shooting in those areas. However the

impacts would be minimal since 40 acres in the Keyesville area and the Piute Cypress ACEC would remain open to shooting. There are areas nearby to the other closures for any displaced hunters and target shooters.

Cooperative management with Santa Margarita Lake County Park on adjacent public lands would increase the recreational opportunities and use of that area for hiking and other non-consumptive uses. There could be a minor loss of hunting opportunities on these lands.

Public lands within 1/4 mile of normal high water will be managed to protect the values of any waterway which has been found to be eligible for potential designation under the Wild and Scenic Rivers Act. Designation of a waterway as a wild, scenic or recreational river could result in a small increase in visitors from those attracted by the river designation.

Lands within wilderness study areas will be managed under the guidelines of the wilderness Interim Management Policy or if designated as wilderness they will be managed under BLM wilderness policy. The designation of an area as wilderness would likely result in a minor increase in public use by those attracted by the wilderness label.

Enhancement of wildlife habitat to increase wildlife populations would improve hunting and wildlife observation recreational opportunities. Prescribed burning, by enhancing wildlife habitat and reducing the potential severity of wildfires, would also enhance recreational use. There would be a short term negative impact to scenic values from prescribed burning.

Enhanced riparian management would slightly benefit recreational use by providing better hunting, birdwatching, scenic quality, etc.

The management of ACECs and other lands for sensitive resources would not have a significant impact on recreation, although recreational activities may be restricted within the ACEC and some users displaced to other less sensitive areas. Public use off designated routes would be limited to pedestrian use on 2,100+ acres. However this would have only a minor impact, as little equestrian use occurs in the areas to be restricted.

Up to 100 white fir trees near Case Mountain and 200 pinyon pine trees near Chimney Peak would be available as Christmas trees for non-commercial use. A restricted amount of firewood cutting would be allowed. This would provide limited amounts of these types of recreational use.

Grazing would continue on 397,000 acres, about 96% of the area currently grazed. There would be minor additional restrictions on grazing under this alternative. Wildlife habitat conditions would be improved, resulting in increased hunting and wildlife observation recreational opportunities.

The retention or revocation of withdrawals would have limited impacts on recreational opportunities. Impacts would occur only if these lands are subsequently developed for mining or for oil and gas operations. Reasonably foreseeable developments in oil and gas development or mining activities would result in minimal impacts on recreational opportunities and uses.

Conclusion. Alternative 3 does not greatly benefit the recreating public and in some areas limits options available, especially for OHV vehicle use and dispersed camping opportunities. Increases in public recreation use from 1,620,000 to 1,800,000 visitor use hours can mostly be attributed to urban expansion and population growth. Some of the increase can be attributed to increased publicity and public visitation to the Carrizo Plain Natural Area and motorized touring on Backcountry Byways. Closure of the Kaweah River and Keyesville informal camping areas would result in a loss of dispersed camping opportunities in these areas, while additional public land access and acquisitions will provide additional opportunities.

Cumulative Impacts

Visitor use will continue to adversely impact other resources in high recreation use areas. However the elimination of dispersed camping

will greatly reduce the level of these impacts in the North Fork of the Kaweah and Keyesville areas. When combined with opportunities available on other Federal lands in the area, overall impacts are expected to be minimal.

Vegetation

Federally Listed Species

California Jewelflower. Impacts from grazing under this alternative would be similar to those described in Alternative 1. In this alternative the utilization rate for saltbush within recovery and potential habitat would be 20% of the current year's growth. This lighter rate of saltbush utilization may in effect shorten the grazing season of use.

Impacts from oil and gas exploration, leasing, and development under this alternative would be the same as those described in Alternative 1.

The listed species primarily occur within the Valley Management Area, where 26,000 acres shall remain available for disposal. Of these acres, it is expected that 75% or 19,500 acres will actually be disposed following NEPA analysis. As explained in Alternative 1, this would result in the loss of 19,500 acres, some of which may be important for the recovery of the species. Approximately 10% of the acreage transferred to the private sector may be developed with roads, buildings, etc. This could result in the permanent loss of 1,950 acres of potential habitat for the listed species.

A total of 114,000 acres have been identified for potential acquisition within the Valley Management Area. Emphasis will be placed on acquisition of high resource value lands within ACECs, NCLWMAs, WSAs, WSRs, and threatened and endangered species conservation areas for listed species. Acquisition of lands with listed or sensitive plant species will benefit these species by providing additional protection.

Designation of the Carrizo Plain as an ACEC and continued acquisition of lands within the Carrizo Plain may aid in the recovery of the species.

San Joaquin Woolly-threads. Impacts from grazing under this alternative would be similar to those described for Alternative 1. In this alternative the utilization rate for saltbush within recovery and potential habitat would be 20% of the current year's growth. This lighter rate of saltbush utilization may in effect shorten the grazing season of use.

Impacts from oil and gas exploration, leasing, and development under this alternative would be the same as those described in Alternative 1.

The effects of disposal and acquisition under this alternative are similar to those described for California jewelflower.

Known populations and potential habitat of San Joaquin woolly-threads within the Carrizo Plain would be protected by the designation of the Carrizo Plain as an ACEC. Designation of Lokern and Alkali Sinks as ACECs may provide important recovery habitat in addition to existing ACECs.

Kern Mallow. The impacts of grazing under this alternative would be the same as those described in Alternative 1.

The impacts from oil and gas exploration, leasing, and development under this alternative would be the same as those described for Alternative 1.

Designation of the Lokern area as an ACEC under this alternative may benefit the species through protection, public education and awareness.

Hoover's Woolly-star. Known populations and designated threatened and endangered species conservation areas for Hoover's woolly-star will not be grazed from February 15 to May 30. Populations outside of conservation areas may be impacted by grazing. The utilization rate for saltbush within listed species ranges would be 20% of the

current year's growth. Utilization at this rate may effectively shorten the available grazing season of use.

Impacts from oil and gas leasing and development under this alternative would be the same as those described for Alternative 1.

The effects of land disposal and acquisition under this alternative are similar to those described for California jewelflower.

Designation of Carrizo, Lokern, and Alkali Sinks as ACECs may provide important recovery habitat for the species.

Bakersfield Cactus. Impacts from grazing under this alternative would be the same as those described for Alternative 1.

Impacts from oil and gas exploration, leasing, and development under this alternative would be the same as those described for Alternative 1.

The effects of land disposal and acquisition under this alternative would be similar to those described for California jewelflower.

Conclusion. Grazing would likely not adversely affect known populations of the species under this alternative. Potential habitat for the species may be adversely affected by grazing. Potential habitat which may be necessary for the recovery of the species may be lost due to oil and gas leasing and development, mineral development, and disposal of Federal lands. Designation of new ACECs and continued acquisition within new and existing ACECs should benefit the species.

Cumulative Impacts: Federally Listed Species

Cumulative impacts would be substantially the same as discussed under Alternative 1.

Candidates

Annual Saltbush. Refer to Alternative 1 for a discussion of the effects of grazing. Designation of Carrizo, Lokern, and Alkali Sinks as ACECs may provide important recovery habitat for the three species of annual saltbush. Continued acquisition within ACECs and threatened and endangered species conservation areas may help promote the recovery of these species.

Alkali Mariposa Lily. The impacts of grazing under this alternative would be the same as those described in Alternative 1. Management of Kernville Hot Springs for riparian and sensitive species will benefit the alkali mariposa lily. No water diversions will be allowed under this alternative. Trespass grazing and OHV use are serious threats to this species. Alkali mariposa lily may occur on small parcels targeted for disposal. If disposed, these areas would likely be developed, resulting in the permanent loss of fragile habitat. Adjacent to the public land parcel in Cyrus Canyon is a heavy OHV use area. Errant OHV activity may seriously impact alkali mariposa lily. Approximately 40 acres of habitat for the species may be disposed under this alternative.

Kelso Creek Monkeyflower. The impacts from grazing under this alternative would be the same as those described for Alternative 1. OHV use is a serious threat to this species. Management of Kernville Hot Springs for riparian and sensitive species may benefit Kelso Creek monkeyflower. Like the alkali mariposa lily, the Kelso Creek monkeyflower could be seriously impacted by OHV activity in Cyrus Canyon. Approximately 120 acres of habitat may be disposed under this alternative.

Recurved Larkspur. The effects of grazing under this alternative would be the same as those described for Alternative 1. Designation of Carrizo Plain and Alkali Sinks as ACECs along with the continuation of the Goose Lake ACEC would aid in the recovery of the species.

Oval-Leaved Snapdragon. Designation of Carrizo Plain and Bluestone Ridge as ACECs will aid in the recovery of oval-leaved snapdragon. These areas would be subject to major constraints for oil and gas leasing.

Impacts from oil and gas exploration may still occur. Approximately 300 acres of habitat for the species may be disposed of under this alternative.

Impacts from grazing under this alternative would be the same as those described for Alternative 1.

Forked Fiddleneck. Impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through increased protection and land acquisition.

Hollisterla. Impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through increased protection and land acquisition.

Jared's Pepper-grass. Impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through increased protection and land acquisition.

Owen's Peak Lomatium. Designation of the Walker Pass area as an ACEC may benefit the species through increased protection.

Mouse Buckwheat. The impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of the North Fork Kaweah area as an ACEC may benefit the species through increased protection.

Piute Mountains Jewelflower. The impacts from grazing under this alternative are the same as those described for Alternative 1. Management of Erskine Creek for riparian and sensitive resources and the retention of the Piute Cypress ACEC will benefit the species through added protection.

Nine Mile Canyon Phacelia. The impacts from grazing under this alternative are the same as those described for Alternative 1. Management of Chimney Peak/Lamont Meadow for riparian, cultural, recreation, and sensitive species, and designation of Walker Pass as an ACEC may aid in the recovery of the species.

Cumulative Impacts: Candidate Species

Cumulative effects on the candidate species are the same as described under Alternative 1.

Sensitive Plant Communities

Valley Saltbush Scrub. The impacts from grazing under this alternative should be the same as those described for Alternative 1.

Oak Woodland. The impacts from grazing under this alternative are similar to those described for Alternative 1. In this alternative any allotment that contains perennial species will have a maximum utilization rate of 50% of the current year's growth. It is possible that the utilization level on perennials will be reached before the mulch drops to the minimum level. The season of use would then be effectively shorter, which may decrease the impacts to oaks from livestock. The perennial utilization level is important in areas that would receive a summer, fall, or winter season of use. The utilization level should allow for the maintenance of oak woodlands and may allow regeneration to occur.

Valley Sink Scrub. Nearly all the known valley sink scrub within the resource area would be included within the Carrizo Plain, Lokern, Goose Lake, and Alkali Sinks ACECs. Under this alternative approximately 120 acres potentially containing valley sink scrub may be disposed. It is not known if these parcels actually contain valley sink scrub. If disposed, valley sink scrub would likely be eliminated by oil and gas development or agriculture.

Joshua Tree Woodland. The impacts from disposal of Federal lands under this alternative would be the same as those described for Alternative 1.

The impacts from mining under this alternative would be the same as those described for Alternative 2. Walker Pass would be designated as an ACEC under this alternative.

The impacts from grazing under this alternative would be the same as those described for Alternative 1.

Giant Sequoia Forest. Case Mountain would be designated as an ACEC under this alternative. Public access to a parking area at the edge of Case Mountain ACEC would be acquired. Only foot or equestrian travel would be allowed within the ACEC. Public access may result in increased visitation which in turn may result in increased impacts to the giant sequoias. The types of impacts would be the same as those described for Alternative 1. Grazing under this alternative would be the same as Alternative 1. Grazing prescriptions would be adjusted or terminated within sequoias if grazing is found to have a negative effect upon the plant community.

Water Resources

The Administrative Adjustment Alternative is a management option which differs only slightly from Alternative 2 for water resources development and protection. The same random event exceptions mentioned in that analysis pose a potential threat, i.e. wild fire and hazardous materials mishaps. However, nonpoint pollution is the primary threat and impact to water quality. The reader is referred to the aforementioned alternatives for greater detail.

More lands (65,000 acres) are available for disposal under this alternative than those previously discussed. Thus the potential for nonpoint pollution increases as these lands are no longer guaranteed Federal land management protection by the implementation of Best Management Practices (BMPs), which serve to mitigate soil resource losses and impacts to water quality. Refer to the discussion under the No Action Alternative.

Acquisition of lands and an allowance for new allotments could result in impacts similar to those described under the No Action Alternative. Range management practices are somewhat more protective, with mulch levels varying from 500 to 700 pounds per acre. In areas having threatened or endangered plants, a 500 lbs. mulch level is required, and 40% or 20% perennial utilization is allowed with seasonal restrictions in riparian zones. Thus protection under this alternative would be somewhat better than under Alternative 1, but it would not be expected to vary significantly from that alternative, with only marginal impacts to water resources expected.

Other potential impacts, such as herbicide use, mining (solids or fluids), hazardous material mishaps etc. pose a potential threat, but it is likely that the impact is not significant. The reader is referred to the No Action Alternative for in depth discussion.

Riparian zone management, acquisition and protection is similar to that proposed under the Resource Protection Alternative with less emphasis on ACECs. However, in conjunction with stabilized watersheds, in-place and proposed monitoring and projects, no significant impacts are expected, barring high order flood events. Refer to Alternative 1 for further discussion.

Recreation impacts to water quality under this alternative are as described under a the No Action Alternative. Impacts are potentially significant.

Wild and prescribed fires are potentially devastating but are random events, as discussed under the No Action Alternative.

Conclusion. Barring unforeseen major fire events and high order hydrologic events, overall water quality impacts due to Bureau management and operations are expected to be minimal. However, a source of nonpoint pollution threatens all watersheds, in the form of excess sediment production. This is due to the drought underway at the time this analysis was prepared. Aforementioned controls and mitigation measures proposed to restore grazing lands, would minimize potential impacts. Regulations enforced and imposed

on mining minimizes impacts. Those impacts due to grazing and riparian management are planned to be mitigated, and thus minimize impacts to water resources. Air regulations will have an indirect effect of curtailing impacts to water due to OHVs, because of the requirements that will regulate and stabilize OHV use areas. In short, the impacts of this alternative would be similar to those described under Alternative 1. This applies also to long range predictions.

Wildlife

Federally Listed Species

Blunt-nosed Leopard Lizard. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 221,091 acres of blunt-nosed leopard lizard habitat will be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1, except that utilization on saltbush would not exceed 20%.

Grazing will be discontinued on approximately 3,272 acres of blunt-nosed leopard lizard habitat. Discontinuation of grazing is expected to be compatible with blunt-nosed leopard lizard habitat requirements.

On 5,376 acres, small patches of saltbush would be grazed not to exceed 20% utilization. These areas may be grazed outside the green season. The effects of grazing outside the green season would be the same as the effects described for Alternative 1.

The effects of oil and gas development, oil and gas leasing, mineral extraction and spraying of malathion would be the same as the effects described for Alternative 1.

Within listed species habitat, approximately 26,000 acres will be available for potential disposal. Of these acres it is expected that 75% or 19,500 acres will actually be disposed. Each parcel would be analyzed as required by NEPA. Under this alternative, parcels supporting a significant quantity or quality of sensitive resources, including listed species habitat, will only be exchanged for parcels supporting similar resources of equal or greater quality. Parcels determined to support insignificant quantities or low quality sensitive resources may be exchanged for lands not supporting the same resources. These lands may also be disposed. It is estimated that 10% of the acreage transferred out of Federal ownership will be developed with roads and structures. This would result in the loss of 1,050 acres of potential listed species habitat. Development reduces the quality of adjacent undeveloped habitat through fragmentation and other indirect impacts. Once development has commenced in an area, further development of adjacent natural lands is likely.

Continued ACEC designation for Chico Martinez, and designation of Carrizo and Lokern as ACEC's will contribute to securing lands important in the recovery of the species. Acquisition, by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species, may contribute to the eventual downlisting of the species in the long-term.

Conclusion. Grazing at a moderate level and discontinuation of grazing, is expected to be compatible with blunt-nosed leopard lizard habitat requirements. Continued development and operation of existing oil and gas fields may result in the eventual loss of some blunt-nosed leopard lizard populations in these areas, and negatively affect recovery of blunt-nosed leopard lizards. Issuing leases for oil and gas development may remove and reduce the quality of listed species habitat. Non-oil and gas mineral extraction may contribute to the loss of some lizard populations within and adjacent to existing oilfields. Spraying of malathion may have adverse effects to lizards and lizard prey species. Parcels supporting a significant quantity or quality of listed species habitat may be exchanged for parcels supporting similar resources. Parcels supporting limited quantities or low quality

habitat may be disposed or exchanged for lands supporting other resources. Continuation of one ACEC and designation of two new ACEC's are expected to contribute to securing lands important in the recovery of the species.

California Condor. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative all designated critical condor habitat, 4,140 acres, will be retained. Potential disposal of 10,500 acres of essential condor habitat will be considered only after Formal Consultation with the USFWS. At least 55,600 acres of essential condor habitat will be retained. Approximately 2,000 acres of public lands adjacent to the Andean condor use area near Hopper mountain will be retained.

The effects of oil and gas development would be the same as the effects described for Alternative 1.

Continued ACEC designation for Blue Ridge and designation of Carrizo as an ACEC will contribute to securing lands important for the recovery of the species.

Conclusion. Critical condor habitat and lands near Hopper Mountain will be retained. Some essential condor habitat may be disposed. Continued oil and gas development at Sespe may have negative impacts to the condor release program. Continued designation of one ACEC and designation of one new ACEC are expected to benefit the species.

Giant Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 218,947 acres of giant kangaroo rat habitat will be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1, except that utilization on saltbush would not exceed 20%.

Grazing will be discontinued on approximately 3,432 acres of giant kangaroo rat habitat. Discontinuation of grazing is expected to be compatible with giant kangaroo rat habitat requirements.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Impacts from disposal are similar to those described for the blunt-nosed leopard lizard.

Designation of Carrizo and Lokern as ACEC's will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species, will contribute to the eventual downlisting of the species in the long-term.

Conclusion. Grazing at a moderate level and discontinuation of grazing are expected to be compatible with giant kangaroo rat habitat requirements. Continued development and operation of existing oil and gas fields may contribute to the eventual loss of some giant kangaroo rat populations in the Buena Vista area. Issuing leases for oil and gas development may remove and reduce the quality of listed species habitat. Parcels supporting a significant quantity or quality of listed species habitat may be exchanged for parcels supporting similar resources. Parcels supporting limited quantities or low quality habitat may be disposed or exchanged for lands supporting other resources. Designation of two new ACEC's is expected to contribute to securing lands important in the recovery of the species.

Tipton Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 11,979 acres of Tipton kangaroo rat habitat will be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1, except that utilization on saltbush would not exceed 20%.

Grazing will be discontinued on approximately 1,000 acres of Tipton kangaroo rat habitat. It is unknown how discontinuation of grazing will affect Tipton kangaroo rats.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Approximately 180 acres with potential to support Tipton kangaroo rat are identified for potential disposal. Disposal of these lands, if they support the species or have potential to be used as a threatened and endangered species conservation area, would negatively affect recovery efforts.

Continued ACEC designation for Goose Lake and ACEC designation for Lokern and Alkali Sinks will contribute to securing lands important in the recovery of the species. ACEC designation and the attendant increase in management is expected to reduce the level of unauthorized activities on these scattered parcels. Acquisition by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species, will contribute to the eventual down-listing of the species in the long-term.

Conclusion. Grazing at a moderate level is expected to be compatible with Tipton kangaroo rat habitat requirements. It is unknown how discontinuation of grazing will affect Tipton kangaroo rats. Continued development and operation of existing oil and gas fields may contribute to the eventual loss of some Tipton kangaroo rat populations in the Buena Vista Valley. Issuing leases may remove and reduce the quality of listed species habitat. Disposal of potential habitat may reduce the amount of Federally protected land available for use in a recovery program. Continued designation of one ACEC and designation of two new ACEC's are expected to contribute to securing lands important in the recovery of the species, and contribute to the eventual down-listing of the species in the long-term.

San Joaquin Kit Fox. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 237,651 acres of San Joaquin kit fox habitat will be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1, except that utilization on saltbush would not exceed 20%.

Grazing will be discontinued on approximately 3,272 acres of kit fox habitat. Discontinuation of grazing is expected to be compatible with kit fox and kit fox prey species habitat requirements.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Impacts from disposal are similar to those described for the blunt-nosed leopard lizard.

Continued ACEC designation for Chico Martinez and ACEC designation for Carrizo and Lokern will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species may contribute to the eventual downlisting of the species in the long term.

Conclusion. Grazing at a moderate level and discontinuation of grazing are expected to be compatible with San Joaquin kit fox and kit fox prey species habitat requirements. Progression from low and moderately developed oilfields to heavily developed oilfields may eliminate kit fox from certain areas. Issuing leases for oil and gas development may remove and reduce the quality of listed species habitat. Parcels supporting a significant quantity or quality of listed species habitat may be exchanged for parcels supporting similar resources. Parcels supporting limited quantities or low quality habitat may be disposed or exchanged for

lands supporting other resources. Continued designation of one ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

Kern Primrose Sphinx Moth. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 13,207 acres of Kern primrose sphinx moth habitat will be grazed by livestock. The effects of grazing would be similar to that described for Alternative 1.

Approximately 10,240 acres of potential habitat for the moth are identified for possible disposal. Should these lands be disposed, land uses incompatible with the sphinx moth and sphinx moth habitat may ensue.

Conclusion. Grazing at a moderate level and discontinuation of grazing may promote recovery by not favoring filaree. Disposal of land in the Walker Basin may reduce the amount of Federally protected lands available for use in a recovery program.

Cumulative Impacts: Federally Listed Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward reducing the likelihood that these species will become extinct in the short-term. Bureau actions may also contribute toward recovery of the species in the long term.

Special Status Species

San Joaquin Antelope Squirrel. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 227,937 acres of San Joaquin antelope squirrel habitat will be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1, except that utilization on saltbush would not exceed 20%.

Grazing will be discontinued on approximately 3,200 acres of antelope squirrel habitat. Discontinuation of grazing is expected to be compatible with antelope squirrel habitat requirements.

The effects of road maintenance would be the same as the effects described for Alternative 1.

Continued ACEC designation for Chico Martinez and ACEC designation for Carrizo and Lokern will contribute to securing lands important in the recovery of the species. Acquisition, by the Bureau, California Department of Fish and Game and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species may contribute to the eventual downlisting of the species in the long term.

Conclusion. Grazing at a moderate level and discontinuation of grazing are expected to be compatible with San Joaquin antelope squirrel habitat requirements. Maintenance of dirt roads, especially in the Elkhorn Plain, may adversely affect the species. Continued designation of one ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

Mojave Ground Squirrel. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 740 acres of potential Mojave ground squirrel habitat may be disposed.

Approximately 46,250 acres of potential Mojave ground squirrel habitat will be grazed. The effects of grazing would be the same as the effects described for Alternative 1, except that all areas will be managed to maintain <50% utilization on perennial species.

Another 9,000 acres within potential Mojave ground squirrel habitat have a moderate to

high potential for sand, gravel, and fill material. Approximately 2,900 acres are within the Walker Pass ACEC where mineral extraction will be required to avoid Joshua Tree Woodlands. Approximately 140 acres of potential Mojave ground squirrel habitat may be removed by sand, gravel, and fill excavation.

Designation of the Walker Pass ACEC and acquisition of lands in the South Sierra Cooperative Management Area will contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level is expected to be compatible with Mojave ground squirrel habitat requirements. Land disposals and mineral extraction activities may adversely affect the species. Designation of one ACEC and acquisition of lands in the South Sierra Cooperative Management Area will benefit the species.

Short-nosed Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 218,822 acres of short-nosed kangaroo rat habitat will be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1, except that utilization on saltbush would not exceed 20%.

Grazing will be discontinued on approximately 3,272 acres of short-nosed kangaroo rat habitat. It is unknown how discontinuation of grazing will effect the short-nosed kangaroo rat.

Continued ACEC designation for Chico Martinez, and ACEC designation for Carrizo and Lokern will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game, and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species may contribute to the eventual downlisting of the species in the long term.

Conclusion. Grazing at a moderate level, is expected to be compatible with short-nosed kangaroo rat habitat requirements. It is unknown how discontinuation of grazing will affect short-nosed kangaroo rats. Continued designation of one existing ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

Mountain Plover. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 182,639 acres of mountain plover habitat will be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1, except that utilization on saltbush would not exceed 20%.

Grazing will be discontinued on approximately 3,552 acres of mountain plover habitat. Discontinuation of grazing is expected to be compatible with plover habitat requirements for most years. During a prolonged series of wet, high mulch years discontinuation of grazing may not be compatible with plover habitat requirements.

Continued ACEC designation for Chico Martinez and ACEC designation of Carrizo and Lokern will contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level, is expected to be compatible with mountain plover habitat requirements. Discontinuation of grazing is expected to be compatible with plover habitat requirements for most years. Discontinuation of grazing during a prolonged series of wet, high mulch years may not be compatible with plover habitat requirements. Continued designation of one existing ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

LeConte's Thrasher. Refer to Alternative 1 for a discussion of the status of this species.

Under this alternative, approximately 249,504 acres of potential thrasher habitat will be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1, except that all areas will be managed to maintain <20% utilization on saltbush and <50% utilization on other perennial species.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Continued ACEC designation for Chico Martinez and ACEC designation of Carrizo and Lokern will contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level is expected to be compatible with LeConte's thrasher habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with thrasher habitat requirements. Continued development and operation of existing oil and gas fields and issuing of leases for oil and gas development may result in the loss of some thrasher habitat. Continued designation of one existing ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

Cumulative Impacts: Special Status Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward reducing the likelihood that some of these species will become Federally listed in the short-term. Bureau actions may also make a contribution to preventing most of the species from becoming Federally listed in the long term.

High Economic or Recreation Value Species

Refer to Alternative 1 for a discussion of the current status of these species.

The effects of livestock grazing on the Long Valley segment of the Monache deer herd would be the same as the effects described for Alternative 1.

Within the Kaweah deer herd range, approximately 17,830 acres will be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1, except that all areas will be managed to maintain <50% utilization on perennial species.

Approximately 386,486 acres of resident deer, and other resident game species, such as quail and chukar, will be grazed by livestock. On 99,373 acres within the Carrizo Plain Natural Area and 107,280 acres within the Walker Pass CRMP Area, the effects of grazing will be the same as the effects described for Alternative 1, except that all areas will be managed to maintain <20% utilization on saltbush and <50% utilization on other perennial species. On 90,548 acres, grazing will be similar to that described for blunt-nosed leopard lizard habitat outside the Carrizo Plain Natural Area.

Of the remaining 89,289 acres, 48,122 acres will be managed to maintain >500 pounds of mulch, 10,750 acres >400 pounds, 2,654 acres >350 pounds, 25,137 acres >300 pounds. All areas will be managed to maintain <50% utilization on perennial species.

Continued ACEC designation for Blue Ridge and ACEC designation for Carrizo, Case Mountain, Walker Pass, and North Fork of the Kaweah is expected to provide habitat conditions that will benefit resident and migratory game species. Continued designation of the Monache-Walker Pass, Temblor and Caliente National Cooperative Land and Wildlife Management Areas is also expected to provide habitat conditions that will benefit resident and migratory game species.

Conclusion. Grazing at a moderate level is expected to be compatible with migratory and resident game species habitat. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial

species is >50%, is not expected to be compatible with game species habitat requirements. Continued designation of one ACEC and three National Cooperative Land and Wildlife Management Areas, and designation of four new ACECs are expected to benefit migratory and resident game species.

Cumulative Impacts: High Economic or Recreation Value Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward meeting the habitat requirements to maintain sufficient populations of game species.

Aquatic, Wetland or Riparian Habitat

Refer to Alternative 1 for a discussion of the current status of these habitat types.

Under this alternative, for 6.6 miles of inventoried reach, grazing will be confined to the green season. Approximately 52.3 miles of inventoried reach will be grazed outside the green season, with 5.1 miles grazed at any time during the year. Approximately 4.9 miles of inventoried reach will be grazed not to exceed 20% utilization on riparian shrubs, and 40% on riparian grasses. Approximately 51 miles of inventoried reach will be grazed not to exceed 50% utilization on perennial species and 3 miles with no maximum utilization level on perennial species.

For 113 inventoried springs, grazing will be confined to the green season. Approximately 494 springs will be grazed outside the green season, with 108 springs grazed at any time during the year. Approximately 66 inventoried springs will be grazed not to exceed 20% utilization on riparian shrubs and 40% utilization on riparian grasses. One inventoried spring, within the Carrizo Plain Natural area, will be grazed not to exceed 20% utilization on perennial species. Approximately 518 springs will be grazed not to exceed 50% utilization on perennial species and 22 springs will be grazed with no maximum utilization level on perennial species.

Nine parcels covering 720 acres with potential riparian resources may be disposed.

Designation of Salinas River, Frog Pond Mountain, Carrizo, Walker Pass, and North Fork of the Kaweah as ACECs is expected to benefit riparian and wetland habitats.

Continued designation of Pt. Sal and the Rocks and Islands ACECs is expected to benefit the intertidal habitat found on these parcels.

Conclusion. Livestock grazing may adversely affect riparian resources on some allotments. Riparian habitat may be present on 720 acres identified for potential disposal. Continued designation of two ACEC's and designation of five new ACECs are expected to benefit riparian, wetland and intertidal habitat.

Cumulative Impacts: Aquatic, Wetland or Riparian Habitats

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward the improvement in overall quality of riparian habitats and may increase the amount of protected riparian habitats.

Significant Populations

Raptors. Refer to Alternative 1 for a discussion of the current status of these species.

Continued ACEC designation for Chico Martinez and Blue Ridge, and ACEC designation for Tierra Redonda, Carrizo, Lokern, Blue Stone Ridge and Case Mountain is expected to provide habitat conditions that will benefit raptor species.

Conclusion. Suitable habitat conditions will

continue to be provided on public lands. Continued designation of two ACEC's and designation of five new ACECs are expected to benefit raptor species.

Neotropical Migrants. Refer to Alternative 1 for a discussion of the current status of these species.

The 18 species which utilize public land during migration may be affected by changes in vegetative structure made possible by the proposed grazing prescription.

Continued ACEC designation for Pt. Sal and Blue Ridge and ACEC designation for Salinas River, Cypress Mountain, and Walker Pass is expected to provide habitat conditions that will benefit these species.

Conclusion. Livestock grazing and disposal may affect riparian resources used by some neotropical migrants. Riparian habitat may be present on 720 acres identified for potential disposal. Continued designation of two ACEC's and designation of three new ACEC's are expected to benefit these species.

Cumulative Impacts: Significant Populations

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward improving the quality and quantity of raptor and neotropical migrant nesting, wintering, and foraging habitat.

Alternative 4 - Development Emphasis

Air Resources

The Development Emphasis Alternative will result in impacts to air quality from activities such as land disposal/acquisition, and oil & gas operations. Other categories of activity have negligible impacts to air resources in the Resource Area.

The control of fugitive dust is only required in the San Joaquin Valley Air Basin (SJVAB); South Central Coast Air Basin (SCCAB) requirements are explained under the No Action Alternative.

A large amount of lands (60,000 acres) are available for disposal through sale or exchange under this alternative. As in the case of Alternative 1, this would affect the number and miles of roads requiring PM_{10} emission control in the SJVAB. Area wide, impacts to air quality due to fugitive dust are not significant, since the percentage of unpaved roads under Bureau management would still be negligible. Should development occur on lands once they move into private ownership, increased PM_{10} generation would occur. On the basis of acreage offered, a moderate to significant impact is possible. The reader is referred to the No Action Alternative for further discussion.

As in the case of Alternative 2, this alternative calls for a higher emphasis on the use of Designated Routes of Travel (DROTs) (Appendix H-1). As a result, a reduction of PM_{10} emission levels is realized by reducing travel on some roads by concentrating them on others. Effects would be as discussed under the No Action Alternative.

Retention or acquisition of lands with roads which fit the criteria as emission sources in the SJVAB, will require the implementation of Reasonable Available Control Measures (RACM). This in turn will result in a reduction of fugitive dust emissions to regulated levels.

Potential impacts due to mining activity are high, with more lands open for extraction of solid leasables/mineral materials (38,000 acres) than under other alternatives. Increased mining could result in a 20 to 25% increase in PM_{10} contribution over that produced under any other alternative. Emission control plans would detail the control of fugitive dust.

Similarly, with more acres open for oil and gas development (795,000 acres), the potential for an increase in associated pollutants exists. New source rules specify no net increase from fluid mineral activity within the SJVAB. Thus any increase in pollutant generation would be localized and the result of transferred, saved, or traded emission credits from elsewhere in the air basin.

Impacts due to OHV activity under the developmental alternative would have the least impact in terms of fugitive dust, because of proposed designated OHV areas. Designating specific areas would result in less PM_{10} contribution, since dispersed use would be expected to decline and since use areas would be required to have approved plans which would show how fugitive dust would be controlled to specified levels. Refer to the No Action Alternative for further discussion on requirements for staged events.

No appreciable impacts to air quality can be expected under this alternative from forest management practices, noxious weed and pest control, or hazardous materials management. The reader is referred to Alternative 1 for an in-depth discussion of the related impacts.

As in the case of the No Action Alternative, the designation of wilderness areas would result in a nominal positive effect on air quality because of Prevention of Significant Deterioration rule provisions.

Effects on air quality due to wild and/or prescribed fires under the Development Emphasis Alternative are not significant and

are the same as explained under the No Action Alternative.

Conclusion. Bureau management under a Development Emphasis Alternative would result in measurable impacts to SJVAB and SCCAB air basin quality. Excluding wildfire, which is highly unpredictable, pollutants emanating from Bureau lands/operations are expected to decline and comparatively continue to contribute about the same percent air basin wide: less than 13% of the emissions from O&G operations, 15% of the emissions from mining, and an incidental amount from activities that contribute fugitive dust.

Land Tenure Adjustment

Impacts to Land Tenure Adjustment are the same as those described in Alternative 1 with the following exceptions or additions:

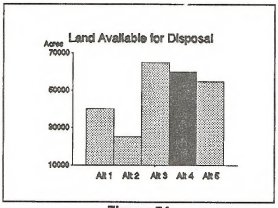


Figure 54

Under this alternative 60,000 acres of public land are available for disposal. It is expected that of these 60,000 acres, approximately 15,000 acres (25%) will be retained in Federal ownership due to environmental considerations. Ninety-five percent (51,000 acres) of the public land considered for disposal will be considered for exchange.

Much of the resource area would be unavailable for disposal due to high resource values. This includes 192,000 acres within 16 ACECs and 84,000 acres within wilderness areas and wilderness study areas. This exceeds the amount identified in Alternative 1 by approximately 225,000 acres. Lands identified for disposal within critical condor habitat would require consultation with the U.S. Fish & Wildlife Service prior to disposal.

It is expected that approximately 104,000 acres of land will be acquired in the areas of Chimney Peak/Kennedy Meadows, Case Mountain, Blue Ridge, and the Carrizo Plain Natural Area. In addition, emphasis will be placed on acquiring lands within ACECs, NCLWMAs, WSAs, threatened and endangered species conservation areas, and the South Sierra Cooperative Management Area. Public land within the Walker Pass ACEC is available for exchange only for lands within the ACEC. Under this alternative, it is expected that the 60,000 acres of public land available for disposal would provide enough lands to acquire approximately 60% of the area identified for possible acquisition.

Approximately 879,000 acres of mineral estate are available for oil and gas and geothermal leasing. Livestock grazing is authorized on approximately 428,400 acres (70%) of public land. These uses may delay or constrain the exchange or sale of the affected lands.

Due to the scattered and rural nature of the public lands, the proposed land tenure adjustments would not significantly affect growth and development near urban areas. It is estimated that over a 15-year period, 10% of the lands transferred to the private sector (6,000 acres) would be developed with roads, buildings, etc.

Conclusion. The conclusions for this alternative are the same as those described in Alternative 1 with the following additions: An estimated 45,000 acres of public land may eventually be disposed under this alternative. Most lands with significant resources are unavailable for disposal. Lands available for disposal would provide enough lands to acquire approximately 60% of the area identified for acquisition.

Cumulative Impacts

Cumulative impacts for this alternative are the same as those described in Alternative 1.

Land Use Authorizations

Impacts to Land Use Authorizations are the same as those described in Alternative 1, with the following exceptions or additions:

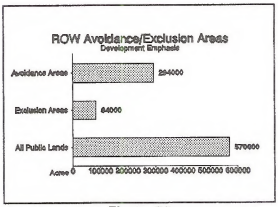


Figure 55

Land Use Authorizations would be constrained on public lands identified as right-of-way exclusion and avoidance areas. Sixteen ACECs (192,000 acres), cultural sites such as Ker 311, Granite Cave, and Walker Pass NHL, and wild and scenic river study areas (19,000 acres) have been identified as right-of-way avoidance areas. This is an increase of approximately 108,000 acres from those areas identified in Alternative 1 that would be constrained. Wilderness areas and wilderness study areas (84,000 acres) have been identified as right-of-way exclusion areas. Designation of two new wind energy sites would be considered within the South Sierra Management Area, with other sites considered on a case-by-case basis. Designation of new communication sites would be considered at Orchard Peak, Red Mountain and Tierra Redonda. Other sites would be considered on a case-by-case basis.

Due to the constraints on public lands with high resource values, it is expected that land use applications may decline by 10%. Land use restrictions would apply on lands acquired with compensation funds (500 acres).

Designated utility corridors are those existing and occupied corridors delineated in the Western Regional Corridor Study, 1986. Three new right-of-way/utility corridors are identified within the Valley Management Area. These designations would encourage placement of right-of-way facilities within established, previously disturbed and preferred routes and could decrease the proliferation of roads, pipelines and utility lines. Construction of facilities within utility corridors and previously disturbed areas would be recommended. Use of corridors may cause conflicts among users and increase the costs to applicants if relocation of proposed facilities is necessary.

Conclusion. The conclusions for this alternative are the same as those described in Alternative 1 with the following additions: Land uses would be constrained where right-of-way exclusion and avoidance areas have been identified (294,000 acres). This may also reduce the number of land use applications by 10%. Designation of new utility corridors may reduce the proliferation of rights-of-way.

Cumulative Impacts

The cumulative impacts for this alternative are the same as those described in Alternative 1, with the following additions: Due to constraints placed on public lands with high resource values, uses that would otherwise have occurred on public lands will be displaced, causing the rate of development to increase on private lands. This increase is not expected to be significant, as public lands are a minor component of the overall land pattern.

Livestock Grazing Management

The protection of Federally listed species from grazing related impacts would not require the elimination of grazing or seasonal restrictions on any allotments under this alternative. Thus, there would be little impact to livestock grazing management. The season of use for livestock grazing will remain as it has in recent years, or will be modified on a case by case basis through development of allotment management plans (AMPs).

Mulch management would continue on allotments which had minimum mulch levels

designated in previous land use plans which varied from 300 to 600 lbs/acre (see Appendix D-1). More allotments would be brought under mulch management as new AMPs were developed.

On those allotments without the mulch requirement, some areas (less than 10%) would experience some accelerated erosion due to inadequate mulch levels on dry years.

Range improvement construction could be restricted due to the presence of listed plants or animals.

Impacts from the proposed riparian management guidelines on grazing management and the forage resource would be the same as those described under Alternative 1.

Impacts from management of the Temblor and Caliente NCLWMAs, oil and gas development, and establishment of designated routes of travel would be the same as those under Alternative 1.

Proposed management of visual resources, wild, scenic and recreational rivers, areas of environmental concern, and of the newly acquired lands within WSAs, would have the same impacts to livestock grazing management as detailed under Alternative 1.

An estimated 66% of lands (40,000 acres) disposed under this alternative would fall within existing allotments and could result in up to 4,000 AUMs becoming unavailable to the current lessee/permittee. It is anticipated that the majority of these disposals will not be made to the current lessee/permittee due to economic constraints. An estimated 34% of lands disposed under this alternative would fall outside existing allotments and would result in an estimated 1,400 AUMs becoming unavailable for grazing lease or permit. The proposed disposal of scattered public land parcels could improve management of existing private grazing operations by eliminating unauthorized grazing on public lands and costly range improvements. The proposed acquisition of 104,000 acres of private land could provide an estimated 5,000 AUMs of forage available for livestock grazing, if these parcels were not grazed under previous ownership. If these acquired lands were previously grazed, the grazing use on them could become more restricted than that which was allowed under private ownership. This could result in less forage being available to livestock for grazing. The proposed acquisition of private lands could improve management capabilities on 7 existing grazing allotments by blocking up scattered public parcels and providing opportunities for pasture systems, better livestock distribution through more efficient range improvement design, and improved management control within these allotments.

Other land use authorizations and transactions such as rights-of-way, withdrawals, access acquisitions, land permits and leases would cause insignificant impacts to grazing management.

The impacts from restrictions to reduce PM_{10} emissions and proposed fire suppression actions would be the same as those under Alternative 1.

Implementation of the proposed management under this alternative can be accomplished with present funding and staffing. Impacts due to constraints on funding and staffing would be the same as described in Alternative 1.

Conclusion. Implementation of Alternative 4 could result in the loss of approximately 2,974 AUMs within existing allotments due to land disposals and oil and gas development. The opportunity for providing proper grazing management and increasing its efficiency through range improvement projects would be slightly limited by Federally listed species restrictions. Available forage would be utilized more closely under this alternative than any other alternative, resulting in more AUMs of forage harvested. Also, more grazing would be allowed in dry years because of the more liberal utilization levels. In the case of consecutive dry periods, this impact would be reduced, since less mulch would be left behind for use in the following year.

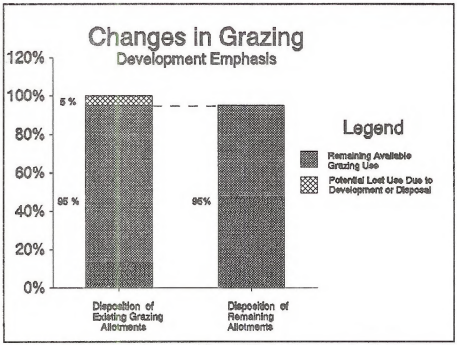


Figure 56

operations within the Caliente Resource Area. New grazing allotments would be established on public land determined to be suitable for grazing, following a case by case environmental assessment. This would allow full utilization of the public land forage resource.

Cumulative Impacts

The implementation of this alternative would result in continued satisfactory resource conditions from present grazing management in both the Coast and South Sierra Management Areas. Resource conditions for the Valley Management Area would also remain satisfactory. In addition, this alternative would also avoid the increased complexity related to intermixed public/private land patterns that the proposed management guidelines in the other alternatives would add to grazing management.

Reduced public and private land use conflicts and increased management efficiency brought about through proposed acquisitions and disposals would occur under this alternative, but at a reduced level from Alternatives 2 and 3.

Impacts to the economy of the livestock grazing industry within the Caliente Resource Area would be insignificant under Alternative 4. Thus, there would not be an affect on the regional economics of the livestock industry.

Socio-Economic Impacts

The continued implementation of allotment management plans will continue to slightly raise the operating expense associated with increased livestock management intensity and range improvement installation or maintenance.

The economically important feature of flexibility in grazing use periods would remain intact under this alternative and thus, would not cause the associated logistical and financial problems which would result from proposed management changes in the other alternatives.

There would be no loss of forage from current grazing levels, which would eliminate the possibility of increased costs resulting from a change in management.

New boundary fences would not be necessary under this alternative, since grazing management would remain compatible between public and private lands.

Conclusion. Under Alternative 4, there would be no significant impact to existing grazing

Mineral Resource Development

Under the Development Alternative, impacts to mineral development from requirements of the Endangered Species Act are expected to be unchanged from the No Action Alternative.

The Piute-Cypress ACEC has moderate potential for gold and other metallic mineral resources. It will remain withdrawn from mineral location under this alternative. Within the Carrizo Plain ACEC, salt and sodium sulphate solid leasable minerals, have been produced from Soda Lake. The normally dry lake bed contains estimated reserves of at least one million tons of sodium sulphate. Soda Lake is proposed for Wild and Scenic River status, and would therefore be closed to development.

Within the North Fork of the Kaweah ACEC the study or designation of the river as Wild and Scenic, will effectively withdraw much of the area from mineral location. The area has moderate potential for tungsten and related metals.

Conclusion. The acreage of Wilderness, Wilderness Study Areas, habitat of Federally listed species and other restrictions or impediments to mineral resource development which do not change between alternative are discussed in No Action Alternative of the Environmental Consequences.

The management prescriptions for Areas of Critical Environmental Concern will not close any area to geothermal resource development, but will close 3,000 acres to solid leasable minerals, 9,000 to locatable minerals and 4,000 to salable minerals. In this alternative about 105,000 acres are VRM Class II, which will severely hamper mineral resource development.

Cumulative Impacts

The cumulative impact to mineral development by restrictions, withdrawals and closures proposed in this alternative will be moderate.

Oil and Gas Development

The Resource Development Alternative would favor increased exploration, production and other activities involving oil and gas in the Caliente Resource Area. Looking at areas with moderate to high potential for oil and gas under this alternative, 2,000 acres fall within non-discretionary closures, none within discretionary closures, 20,000 acres are open to leasing subject to major constraints, and 459,000 acres are open for leasing under standard lease terms. Negligible impacts to oil and gas activities are expected on the 458,000 acres of land with no or low oil and gas potential.

A positive impact of the implementation of this alternative will be allowing public lands to be offered in regular lease sales each year. This will benefit the oil and gas industry in the resource area by providing new exploration and development opportunities on a regular basis.

Possible negative impacts as a result of conflicts with other resources include delays to operations, movement of operations to the point that directional drilling will be necessary, or even denial of operations. These negative impacts will all result in greater costs. Delays may extend from a few days, to weeks, or a year or more, possibly causing the corporation or investors to seek more timely opportunities elsewhere. Up-front costs (acquisition of information, time and payroll costs in the evaluation of the information, and other factors) which are indispensable in development of prospects to be drilled, may not be recovered in a timely fashion. These items may combine to make the drilling of wells uneconomical. These points are described in greater detail below.

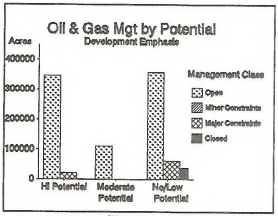


Figure 57

Management of ACECs under the Development Emphasis Alternative would result in no new land withdrawals, although ACEC lands may be subject to major constraints and special stipulations. Oil and gas potential is generally low in these ACECs, or restrictions on exploration and development are minimal. Nevertheless consequent to increased development there will be increased conflicts with the management of other resources, particularly T&E species. However only minor additional impacts from those seen in Alternative One are expected from ACEC management.

Impacts from Air Quality Management

Oil and gas operations can only take place on BLM land if the operator is in compliance with local air pollution control districts (APCDs), as well as State and other Federal regulations. Energy companies are expected to be currently in compliance, so insistence on compliance should not increase costs. The BLM may require proof of compliance with local APCD requirements. Although the cost of compliance will not change, delays may result if documentation cannot be presented in a timely fashion. There may be additional minor costs as a consequence.

BLM requirements for PM_{10} abatement will limit usage of some roads, and demand prompt rehabilitation, including requiring dust and other particulate control measures. Due to the establishment of designated routes of travel (DROTs), there may be increased costs in the form of travel time, added fuel needs, and permitting delays. The implementation of this alternative will result in minor impacts to high and moderate oil and gas potential lands.

Impacts From Land Uses

About 487,000 acres of lands in the resource area consist of public land surface with mineral rights, and another 452,000 acres of Federal reserved mineral estate. Split estate lands in low to no oil and gas potential areas may be considered for disposal to the private sector in land exchanges, and other land tenure actions. In cases where operators may wish to explore or develop split estate lands, exploration and development can be delayed and slightly more expensive due to the need to deal with the surface owner in addition to the BLM.

Some acquisitions may occur as a result of compensation for impacts to threatened or endangered species. The availability of compensation acquisitions as an option facilitates oil and gas development by allowing an action to proceed in sensitive habitat. The identification of lands for acquisition should facilitate this compensation.

High to moderate oil potential lands which are also large areas of land acquisition include the Carrizo Plain and Kettleman Hills. Lands with low to no oil and gas potential which are also areas of potential land acquisition include Case Mountain, Blue Ridge, Chimney peak, and South Fork of the Kern River Areas. Few lands in areas of high potential have been identified for disposal. In the case of disposals, parcels with high to moderate oil and gas potential usually have mineral rights reserved to the government. As a result, negative impacts as a result of sale or exchange will be minimal.

Economics, legislation and demand dictate the need for leases and land permits. Rights-of-way are often issued for construction of pipelines, powerlines, and roads. About 30 applications for rights-of-way involving oil and gas are received each year. Roads and access are essential to oil and gas operations. As the use of undesignated routes may be approved for administrative purposes, there will be only minor added costs and an emphasis on using designated routes of travel. Emphasis on the use of designated routes of travel could result in some minimal restrictions on placement of facilities, and timing delays for rights of ways, resulting in negligible added costs. Impacts to oil and gas development are expected to be minor at most from land permit issues under this alternative.

Impacts From Threatened & Endangered Species Management

Regular leasing of lands by the BLM could result in the issuance of up to 50 or more new leases per year. It is expected that development could occur on all of the lease, a portion of the lease, or under the lease from adjacent lands. A controlled surface use stipulation (Stipulation C1 in Appendix G-3) is proposed for nearly all of the unleased lands with significant oil producing potential in the San Joaquin Valley. Once these lands are leased, inventories must take place to determine whether threatened and endangered species and their habitats exist on the subject lands in compliance with the Endangered species Act prior to initiation of exploration and development activities. Compliance with the Endangered Species Act can cause delays, denial of the application, or movement of the operating site - all of which add to costs.

The controlled surface use stipulation can be waived or an exception granted once inventories for threatened and endangered species are completed on land to be leased, if the exploration or development of the lease is not found to conflict with the species or its habitat. Currently existing leases, including those held by production, are limited by existing terms and conditions, and would be unaffected by any stipulations identified in this plan.

The controlled surface use stipulation might preclude drilling on some leases if they include large tracts of threatened or endangered species, and if directional drilling is either not an option or would be too expensive. In that case the oil and gas resources could not be fully developed. However, this is expected to be a very rare occurrence. It is estimated that impacts to oil and gas wildcat drilling from management of threatened and endangered species under the Resource Protection Alternative will therefore be minor to moderate on new leases and negligible on existing leases.

Since there would be an emphasis on developing the oil and gas resources, exploration would involve greater interest in subtle traps, off flank plays, and sub-thrust plays. This could result in drilling in areas not previously disturbed by oil and gas activities. These lands could also include those which contain threatened or endangered species habitat, as well as those currently under intensive agricultural use. Overall, impacts from threatened and endangered species management are expected to be minor to existing leases, and minor to moderate in new leases.

Impacts from Water Quality Management

Downhole formations are isolated to protect against contamination of aquifers. Currently existing Bureau standard operating procedures in the oil fields also ensure formation integrity and aquifer protection, so impacts from the revised standard operating procedures should be minimal. Older wells will continue to be inspected and tested to determine the degree of sealing done during drilling and completion across aquifers. Newer wells will be monitored by the running of Cement Bond Logs, or other appropriate measures to ensure the integrity of casing and cement across aquifers. Water disposal wells will also be inspected to protect aquifer quality under this alternative. Additional costs due to the implementation of this plan will be minimal, but may result from ensuring compliance with existing regulations.

Unlined sumps are prohibited if there is any potential for impacts to natural drainages or groundwater. In other areas unlined sumps may be required to have leak detection systems. Prevailing spill contingency plans and proper well abandonment procedures safeguard ground surfaces, natural drainages, and subsurface aquifers. These requirements are unchanged under this alternative. Standard operating procedures (SOPs) and conditions of approval (COAs) regarding sumps, abandonment of sumps, berms, and the tanking of drilling fluids and disposal of contaminated soil may add costs to production and development, although impacts from these issues are expected to be minor.

Other Impacts

Impacts to oil and gas by other issues addressed in Alternative One but not addressed above, are similar to those discussed in Alternative One.

Conclusion. Implementation of the Development Emphasis Alternative generally will result in minor impacts on oil and gas development. Oil and gas operations will benefit from regular lease sales, without the potential delays which could result from separate environmental assessments which would be necessary for each offering, if this plan were not implemented.

Threatened and endangered species management has the most potential to cause negative impacts under this alternative. Conflicts would be most severe in undeveloped areas; impacts due to the presence of threatened and endangered species in currently operating fields would be minor.

Other negative impacts in the form of higher costs are expected from management of air quality, recreation, and water issues. Each issue individually contributes minor impacts, their cumulative impacts may force some small operators out of business due to the currently (1992) depressed local oil and gas economy. However many of these impacts are beyond the scope of this plan. Impacts due to the implementation of this alternative are expected to minor overall.

Cumulative Impacts

A BLM stripper well royalty reduction and incentive plan as currently (April 1992) proposed could result in the reworking of marginal wells, with a significant number (± 20%) converting to enhanced oil recovery (EOR). This could lead to moderate to high positive impacts to oil and gas operations, reducing the significance of any negative impacts from this plan. Effects of the State's idle well policy are similar to those described under Alternative 1.

Conflicts as a result of the management of other resources could reduce participation or delay participation in the current State plan, or the proposed Federal plan. Under the Development Emphasis Alternative there may be added impacts to these activities, from the management of Threatened and Endangered Species which may have inhabited the non-active well pads in the interim. The result will be minor to moderate impacts.

There will be a greater increase in drilling, work-overs and conversion to enhanced oil recovery or other types of secondary and tertiary project wells. Experimentation in new technologies of extraction of residual oil, such as light oil steam floods and chaser projects would be encouraged.

Due to the increased development, royalties could increase by a fourth, and employment in oil related industries would increase. As discussed in Alternative One, currently there are 18,000 to 20,000 oil related jobs in the Resource Area. There will be beneficial impacts associated with increased personal income, and government revenues associated with Federal oil and gas development. Off-setting this would be inflation due to increases in energy costs at all levels.

Most drilling will take place in Midway Sunset or other lands leased prior to 1992. There will be a 5% to 12% increase in enhanced oil recovery wells per year, and up to 250 Applications for Permits to Drill per year for all types of wells. There will be up to 3 new fields discovered and up to 10 wildcat wells drilled per year. Seismic related disturbance will range up to 250 acres. New disturbance to threatened and endangered species habitat by wildcat activities would increase by 50 to 100 acres. The net surface disturbance will be from 1,210 to 3,610 acres. This is less than 1% of the total acreage and represents a negligible amount of disturbance.

A summary of projected increases in drilling activity under this alternative may been seen in the maximum cases found in the reasonable foreseeable development Table G-9, G-10, and

G-11 (Appendix G-2). The tables summarize activities in Midway-Sunset, other development well drilling in the Resource Area, and total projected drilling activity on Federal lands in the Resource Area. Only 13% of production and operations is from Federal lands, the remaining 87% encompass private land holdings. The effects to most operators then will be minor; operators who have large Federal holdings will sustain minor to moderate impacts however.

Recreation

Off highway vehicle use would be designated as "limited" on most public lands, restricting vehicles to designated routes. Closed areas include the Point Sal, Frog Pond Mountain and Blue Ridge ACECs, Short Canyon, and the Machesna and Santa Lucia wilderness areas. Calf Canyon would be developed as an OHV use area, contingent upon meeting PM_{10} air quality standards and county planning regulations. In conjunction with user groups, a suitable location for an OHV open area within the Valley Management Area would be considered. A 160 acre area near Lake Isabella would be designated an open area in conjunction with a USFS motocross area. This alternative would provide for OHV recreational opportunities that are not available under the other alternatives.

The Soda lake - Elkhorn Plains loop road, the Canebrake - Long Valley loop road, and the Kelso Valley Road would be designated as Backcountry Byways. This designation and subsequent publicity would result in an increase in motorized touring recreational use in these areas.

The disposal of about 60,000 acres of small isolated parcels of public lands would have negligible impacts to recreation use. Most of these parcels have no public access and their use is controlled by the adjacent landowners. Retention of these parcels would not benefit public recreational use or opportunities.

Acquisitions of land which increase public access would increase recreational opportunities and use. However such benefits would be limited, as public use of most acquired lands would be restricted to protect threatened and endangered species or other special resource values.

Acquisition of public access to the Duck Pond and Goose Lake would benefit birdwatching, environmental education and nature study opportunities in these areas. Non-motorized public access would be acquired to Cypress Mountain, and pedestrian access to Point Sal, which would increase hiking, hunting and related outdoor pursuits in these areas. In addition, public access would be acquired to Case Mountain, and an agreement with adjacent landowners for controlled public access to the Chico Martinez ACEC would be developed. This would increase hiking, hunting and related outdoor opportunities. Except for providing public access, no additional facilities would be developed for recreational use in these areas.

Camping within the 98,300 acre Carrizo Plain ACEC would be restricted to 2 locations. This would result in some loss of dispersed camping opportunities which would primarily affect hunters who camp near their hunting area. Opportunities for dispersed camping would be eliminated on an additional 14,800 acres. A significant reduction in dispersed camping use and opportunities would occur in the North Fork of the Kaweah area. The three major public use areas on the North Fork of the Kaweah River would be closed to dispersed camping and managed for extensive recreational use. Dispersed camping in the Keyesville area would be allowed only along the river corridor. Under this alternative, a campground would be developed both in the North Fork of the Kaweah and the Keyesville areas.

Subject to an environmental analysis, an additional raft launching site would be developed on the lower Kern River for use in low water years. This would assist rafting use during years of low flows.

The designation of an area for dog trials and a shooting range within the Temblor NCLWMA would benefit organized activities of this type.

There are sufficient adjacent public lands to accommodate any other recreational users who might be displaced as a result.

About 7,200 acres would be closed to shooting, which would eliminate hunting and target shooting in those areas. However the impacts would be minimal since 40 acres in the Keyesville area and the Piute Cypress ACEC would remain open to shooting. There are other available areas near the closures for any displaced hunters and target shooters.

Cooperative management with Santa Margarita Lake County Park on adjacent public lands would increase the recreational opportunities and use of these areas for hiking and other non-consumptive uses. There could be a minor loss of hunting opportunities on these lands.

Public lands within 1/4 mile of normal high water will be managed to protect the values of any waterway which has been found to be eligible for potential designation under the Wild and Scenic Rivers Act. Designation of a waterway as a wild, scenic or recreational river could result in a small increase in visitors from those attracted by the river designation.

Lands within wilderness study areas will be managed under the guidelines of the Wilderness Interim Management Policy or, if designated as wilderness, they will be managed under BLM Wilderness Policy. The designation of an area as wilderness would likely result in a minor increase in public use by those attracted by the wilderness label.

Enhancement of wildlife habitat to increase wildlife populations would improve hunting and wildlife observation recreational opportunities. Prescribed burning, by enhancing wildlife habitat and reducing the potential severity of wildfires, would also enhance recreational use. There would be a short term negative impact to scenic values from prescribed burning.

Enhanced riparian management would slightly benefit recreational use by providing better hunting, birdwatching, scenic quality, etc.

The management of ACECs and other lands for sensitive resources would not have a significant impact on recreation, although recreational activities may be restricted within the ACEC, and some users displaced to other less sensitive areas. Public use off designated routes would be limited to pedestrian use on 600+ acres. However this would have an insignificant impact, as little equestrian use occurs in the areas to be restricted.

Up to 100 white fir trees near Case Mountain and 200 pinyon pine trees near Chimney Peak would be available as Christmas trees for non-commercial use. A restricted amount of firewood cutting would be allowed. This would provide limited amounts of these types of recreational use.

Grazing would take place on 428,000 acres with small adjustments from present practices. A slight decrease in current recreational use and opportunities would be expected.

The retention or revocation of withdrawals would have limited impacts on recreational opportunities. Impacts would occur only if these lands are subsequently developed for mining or for oil and gas operations. Reasonably foreseeable developments in oil and gas development or mining activities would result in minimal impacts on recreational opportunities and uses.

Conclusion. Alternative 4 provides the greatest opportunity to provide additional recreational opportunities. Two additional campgrounds would be developed, and OHV recreational use area options would be explored. Increases in public recreation use from 1,620,000 to 2,000,000 visitor use hours can mostly be attributed to urban expansion and population growth. Some of the increase can be attributed to increased publicity and public visitation to the Carrizo Plain Natural Area and motorized touring on Backcountry Byways. Significant increases in OHV recreation would occur if environmental constraints can be met. Closure of the Kaweah River and Keyesville informal camping

areas would result in a loss of dispersed camping opportunities.

Cumulative Impacts

Visitor use will continue to adversely impact other resources in high recreation use areas. However the elimination or restriction of dispersed camping will greatly reduce the level of these impacts in the North Fork of the Kaweah and Keyesville areas. Development of new campgrounds and leaving most lands open to dispersed camping may reduce recreation pressure on other Federal and private lands. The establishment of OHV use areas would concentrate use, reducing pressure on private lands.

Vegetation

Federally Listed Species:

California Jewelflower. All but one of the known California jewelflower locations within grazing allotments occur within the Carrizo Plain Natural Area. Impacts to known populations within the CPNA would be the same as those described for Alternative 1 since management of grazing within the CPNA is the same across all alternatives.

In the Santa Barbara Canyon allotment, 74 acres of known habitat and 1,704 acres within a threatened and endangered species conservation area for California jewelflower would be available for grazing from November 1 to May 1. Another 480 acres within a threatened and endangered species conservation area outside Carrizo would be available for grazing year long. These areas would be managed with no prescribed minimum mulch levels.

Although physically located in the Carrizo Plain, 7,250 acres within the threatened and endangered species conservation area will be managed differently from the rest of the CPNA under this alternative. These acres will be available for grazing year long. In the North Temblor allotment 7,090 of the above acres have a mulch level of 500 lb/acre; the remaining areas have no mulch guidelines. If California jewelflower actually occurs within these allotments, individuals/populations would be seriously impacted by direct herbivory and trampling. Grazing would probably occur during the spring within the North Temblor allotment, when mulch is most available and when California jewelflower is vulnerable to grazing. In year long allotments, perennial species such as saltbush may be heavily grazed, resulting in habitat degradation. Grazing under this alternative would not promote the recovery of California jewelflower and may contribute to the extirpation of populations on public land.

The impacts from continued oil and gas development under this alternative would be the same as those described for Alternative 1.

Refer to Alternative 1 for a general discussion on oil and gas leasing. Under this alternative, leasing of areas for oil and gas development will be subject to standard lease terms. Surface disturbing activities in listed species habitat would be authorized subject to restrictions deriving from specific nondiscretionary statutes, including the Endangered Species Act. These restrictions would include reasonable and prudent alternatives for avoiding jeopardy. In addition, other reasonable measures, including conservation recommendations, may be attached, so long as they do not require relocation of proposed operations greater than 200 meters or prohibit new surface disturbing operations for greater than 60 days. Under standard stipulations, the Bureau would not have the option of prohibiting all surface disturbing activities from the lease, unless it was required as part of a reasonable and prudent alternative to avoid jeopardy. Reasonable and prudent alternatives, however, must be consistent with the intended purpose of the action, must be able to be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction, and must be economically and technologically feasible. In certain circumstances, prohibiting surface disturbance from all or part of a lease may not be consistent with the requirements for a reasonable and prudent alternative.

Under standard stipulations, even if areas of development could not be relocated to avoid areas of importance to listed plant species, the maximum amount of habitat loss is predicted to be 1,520 acres. The loss of 1,520 acres alone, is not expected to jeopardize the continued existence of a listed species in the short term. Cumulatively, the loss of 1,520 acres, as well as the limitation of what can be required through terms and conditions, and reasonable and prudent alternatives, may hamper recovery efforts, as well as jeopardize the continued existence of a listed species in the long term.

The listed species primarily occur within the Valley Management Area where 20,000 acres shall remain available for disposal under this alternative. Of these acres, it is expected that 75% or 15,000 acres will actually be disposed following NEPA analysis. As explained in Alternative 1, this would result in the loss of 15,000 acres, some of which may be important for the recovery of the species. Approximately 10% of the acreage transferred to the private sector may be developed with roads, buildings, etc. This could result in the permanent loss of 1,500 acres of potential habitat for the listed species.

A total of 98,000 acres have been identified as suitable for potential acquisition within the Valley Management Area. Emphasis will be placed on acquisition of high resource value lands within ACECs, NCLWMAs, WSAs, WSRs, and threatened and endangered species conservation areas for listed species. Acquisition of private lands with listed or sensitive plant species will benefit these species by providing additional protection.

In this alternative, three new ACECs are proposed within the range of the listed species. These are Carrizo, Lokern, and Alkali Sinks. Designation of these areas as ACECs may aid in the recovery of the species through increased protection.

San Joaquin Woolly-threads. The impacts from grazing within the Carrizo Plain Natural Area would be the same as those described for Alternative 1. Although physically located in the Carrizo Plain, 7,250 acres within the threatened and endangered species conservation area will be managed differently from the rest of the CPNA under this alternative. These acres will be available for grazing year long. In the North Temblor allotment 7,090 acres would have a mulch level of 500 lb/acre; the remaining areas have no mulch guidelines.

In known habitat, two allotments totalling 4,593 acres would be grazed year long in this alternative. In addition, 4,193 of these acres will be simultaneously grazed with sheep and cattle from March 1 to May 31. One allotment totalling 560 acres would be grazed March 1 to May 1, and another allotment totalling 3,454 acres would be grazed October 1 to April 30. All known populations would be grazed under this alternative. San Joaquin woolly-threads would be severely impacted by trampling of individuals/populations and from direct herbivory, especially when San Joaquin woolly-threads grows among other forage species. The cryptogamic crusts associated with San Joaquin woolly-threads would be severely impacted, especially by grazing in the summer months.

Outside the Carrizo Plain in threatened and endangered species conservation areas for the species, 480 acres will be available for grazing year long and 1,778 acres would be available November 1 to May 1. If the species occurs in these areas they would be impacted as above. Areas with suitable habitat may be degraded to the point that they can no longer support San Joaquin woolly-threads.

Allotments within potential habitat would be similarly grazed. Recovery of San Joaquin woolly-threads is not possible under this alternative and the further decline of the species is likely.

The impacts from continued oil and gas development under this alternative would be the same as those described for Alternative 1.

The impacts from oil and gas leasing, disposal and acquisition of lands, and designation of new ACECs would be the same as those described for the California jewelflower.

Kern Mallow. Kern mallow occurs within one allotment of 2,278 acres that would be available for grazing year long under this alternative. Trampling and direct herbivory may severely impact Kern mallow. Kern mallow is associated with cryptogamic crusts. Grazing can damage cryptogamic crusts at any time of the year. Since this allotment may not receive a rest period, the habitat for Kern mallow may be irreparably damaged. Kern mallow may be extirpated from this allotment.

In the threatened and endangered species conservation area for Kern mallow, 480 acres would also be available for grazing year long. If the species occurs in this area, individuals would be directly impacted by grazing. Habitat that may be suitable for the recovery of the species may be altered to the point that it is no longer suitable.

The impacts from continued oil and gas development under this alternative would be the same as those described for Alternative 1.

The impacts from oil and gas leasing, disposal and acquisition of lands, and designation of new ACECs would be the same as those described for the California jewelflower.

Hoover's Woolly-star. Impacts from grazing within the Carrizo Plain would be the same as those described for Alternative 1.

In known habitat, two allotments totalling 4,673 acres would be available for grazing year long in this alternative. In addition, 4,193 of these acres would be simultaneously grazed with sheep and cattle from March 1 to May 31. In another allotment, 3,454 acres would be grazed from March 1 to April 30. Two other allotments totalling 8,270 acres would be grazed from either October 1 or November 1 to May 31. Impacts to Hoover's woolly-star may occur from trampling during the period from germination to seed set.

All of the allotments with known populations are also within threatened and endangered species conservation areas for the species. In addition 480 acres would be available for grazing year long; 1,778 acres would be grazed November 1 to May 1; 640 acres would be grazed January 15 to June 30; and 600 acres would be grazed March 1 to May 1 with a minimum mulch level of 500 lb/acre. If the species occurs within these areas, they may be impacted as above. Areas with suitable habitat may be degraded to the point that they can no longer support Hoover's woolly-star.

The impacts from continued oil and gas development under this alternative would be the same as those described for Alternative 1.

The impacts from oil and gas leasing, disposal and acquisition of lands, and designation of new ACECs would be the same as those described for the California jewelflower.

Bakersfield Cactus. There are no known populations of Bakersfield cactus on Bureau owned land. Within the threatened and endangered species conservation area, four allotments totalling 1,471 acres would be available for grazing year long; 160 acres would be grazed from April 1 to October 1; 480 acres grazed November 1 to February 28; and 215 acres grazed March 1 to June 30. Any cactus within these areas could be impacted from trampling and breakage.

The impacts from continued oil and gas development under this alternative would be the same as those described for Alternative 1.

The impacts from oil and gas leasing, disposal and acquisition of lands, and designation of new ACECs would be the same as those described for the California jewelflower.

Conclusion. Grazing under this alternative may adversely impact known populations of listed species and degrade potential habitat for the species. Potential habitat which may be necessary for the recovery of the species may be lost due to oil and gas leasing and development, mineral development, and disposal of Federal lands. Designation of new

ACECs and continued acquisition within new and existing ACECs should benefit the species.

Cumulative Impacts: Federally Listed Species

See Alternative 1 for a discussion on cumulative effects.

Candidates

Annual Saltbush. Refer to Alternative 1 for a discussion of the effects of grazing. Designation of Carrizo, Lokern, and Alkali Sinks as ACECs may provide important recovery habitat for the three species of saltbush. Management of Buena Vista Valley for listed species recovery may benefit Bakersfield saltbush, Lost Hills saltbush, and heart-leaved saltbush. Continued acquisition within ACECs and threatened and endangered species conservation areas may help promote the recovery of these species.

Alkali Mariposa Lily. The impacts of grazing under this alternative would be the same as those described in Alternative 1. Trespass grazing and OHV use are serious threats to this species. Under this alternative Cyrus Flat would be managed as an OHV open area. This area is potential habitat for alkali mariposa lily but it is not known if the species actually occurs there. Any populations within the area would likely be destroyed by OHV use. Alkali mariposa lily may occur on 40 acres targeted for disposal. If disposed, these areas would likely be developed resulting in the permanent loss of fragile habitat.

Kelso Creek Monkeyflower. The impacts from grazing under this alternative would be the same as those described in Alternative 1. Under this alternative Cyrus Flat would be managed as an OHV open area. This area is high potential habitat for Kelso Creek monkeyflower. Any populations within the area would likely be destroyed by OHV use. This alternative could lead to the extinction of Kelso Creek monkeyflower. Approximately 120 acres of habitat may be disposed under this alternative.

Recurved Larkspur. The effects of grazing under this alternative would be the same as those described for Alternative 1. Designation of Carrizo Plain and Alkali Sinks as ACECs along with the continuation of the Goose Lake ACEC would aid in the recovery of the species.

Oval-Leaved Snapdragon. Designation of Carrizo Plain as an ACEC may aid in the recovery of oval-leaved snapdragon. Oil and gas leasing with standard stipulations would be allowed within the Carrizo Plain under this alternative. Oval-leaved snapdragon may be seriously impacted by oil and gas leasing and development. Impacts from grazing within the CPNA would be the same as those described for Alternative 1. Approximately 19,051 acres would be grazed from late December to June 30. Approximately 20,381 acres would be grazed from July 1 to December 31, which is not compatible with oval-leaved snapdragon. Except for portions within the CPNA, these areas do not have minimum mulch levels. Populations of oval-leaved snapdragon may be seriously impacted within those areas grazed during the summer. Field observations indicate that cattle preferentially consume this plant when present. Approximately 300 acres of habitat may be disposed under this alternative.

Forked Fiddleneck. Impacts from grazing under this alternative would be the same as those described in Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through increased protection.

Hollisteria. Impacts from grazing under this alternative would be the same as those described in Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through increased protection.

Jared's Pepper-grass. Impacts from grazing under this alternative would be the same as

those described in Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through increased protection.

Owen's Peak Lomatium. Designation of the Walker Pass area as an ACEC may benefit this species.

Mouse Buckwheat. Impacts from grazing under this alternative would be the same as those described in Alternative 1.

Piute Mountains Jewelflower. Impacts from grazing under this alternative would be the same as those described in Alternative 1. The continuation of the Piute Cypress ACEC will benefit the species through continued protection through increased acquisition and protection.

Nine Mile Canyon Phacelia. Impacts from grazing under this alternative would be the same as those described in Alternative 1. Designation of Walker Pass as an ACEC may aid in the recovery of the species through increased acquisition and protection.

Cumulative Impacts: Candidate Species

See Alternative 1 for a discussion on the cumulative effects on the candidate species.

Sensitive Plant Communities

Valley Saltbush Scrub. The seasons of use for allotments that contain saltbush vary. Many allotments that contain saltbush are classified as annual forage allotments under this alternative and would be available for grazing year long. Within these allotments, 12,578 acres would be managed for a maximum perennial utilization rate of 50% of the current year's growth. The remaining 480 acres would have no maximum utilization rate or minimum mulch level. Also available for grazing year long are 22,390 acres, which are classified as perennial/annual forage allotments, and would be managed for a maximum perennial utilization rate of 50% of the current year's growth and a minimum mulch level of either 400 or 500 lbs/acre.

In this alternative 5,217 acres would be grazed primarily during the green season, but with use extending one month into the green season. Of these 3,300 acres would be classified as perennial/annual forage range and would be managed for both a maximum perennial utilization rate of 50% of the current year's growth and a minimum mulch level of 500 lbs/acre; the remaining 1,917 acres would be managed for the perennial utilization of 50% of the current year's growth only.

Approximately 16,606 acres containing saltbush will be available for grazing from October or November through the green season. Of these, 4,564 acres are classified as perennial/annual forage range and will be managed for both a maximum utilization rate of 50% and a minimum mulch level of 500 lbs/acre; 9,784 acres would be classified as annual forage range and would be managed for a maximum perennial utilization rate of 50% of the current year's growth; and 2,258 acres would have no prescribed mulch level or utilization rate.

The remaining 11,525 acres with large areas of saltbush would be available for grazing from late spring to December 31. These acres are classified as perennial/annual forage allotments and would be managed for a maximum perennial utilization rate of 50% of the current year's growth and a minimum mulch level of 500 lbs/acre. In addition to allotments with large areas of saltbush there are six other allotments which have small patches of saltbush. All are considered annual forage allotments under this alternative and have no prescribed mulch level. Approximately 2,116 acres would be available for grazing year long, 3,180 acres would be grazed from December through June, and 80 acres would be available for grazing from September to May 31.

Grazing during the green season is usually compatible with the maintenance of saltbush if the allotment is monitored for mulch and perennial utilization. The primary forage available during the non-green season would be dry forage, saltbush, and other perennial species. If available, livestock will graze green

forage in preference to dry forage or browse. Under woody perennials, herbaceous species may germinate earlier where it is warmer in the winter and stay green longer into the summer where it is cooler and moister. This may result in selective utilization of vegetation growing under saltbush, resulting in compaction of the soil and severe mechanical damage to saltbush. Where there is a minimum mulch level plus a perennial utilization level the impacts would be the same as those described for Alternative 1. In the allotments with a green season of use but no mulch or utilization level, saltbush will be heavily utilized toward the end of the season when forage begins to cure out and if it was a low production year. When grazing occurs in the non-green season, saltbush will be heavily utilized and suffer from mechanical damage. Saltbush would likely decline in allotments with no mulch or utilization guidelines. The impact to saltbush is compounded by grazing in summer and fall. Regeneration of saltbush is unlikely under this alternative.

Oak Woodland. In oak woodland 25,336 acres would be available for grazing year long with no prescribed mulch or perennial utilization levels. One year long allotment totalling 2,031 is classified as having perennial/annual forage and has a perennial utilization level of 50% of the current year's growth. One additional allotment with year long use totalling 5,653 acres has a minimum mulch level of 600 lbs/acre. Approximately 5,854 acres would be grazed in the spring only. Approximately 16,135 acres would be grazed from spring through summer or fall, and 4,469 acres would be grazed from fall through spring. One allotment totalling 10,746 acres would be grazed March 1 to August 31 with a mulch level of 400 lb/acre and a perennial utilization level of 50% of the current year's growth. Unless indicated, all allotments known to contain oaks would be classified as annual forage allotments with no prescribed minimum mulch level or perennial utilization rate. Grazing during the summer, fall, and early winter may be detrimental to oaks under this alternative because there are few areas managed for mulch or perennial utilization. During this time of year when herbaceous forage cures out and loses nutritional value, livestock will turn to oak seedlings, leaves, and acorns. Livestock will also selectively graze remaining green herbaceous vegetation that grows under oaks and other woody perennials during this time of the year resulting in compaction of the soil and damage to the tree's roots and low branches. Oak regeneration is unlikely to occur within 45,940 acres. The remaining 18,430 acres have seasons of use or minimum mulch and perennial utilization requirements which may off-set impacts from grazing.

Valley Sink Scrub. Nearly all the known valley sink scrub within the resource area would be included within the Carrizo Plain, Lokern, Goose Lake, and Alkali Sinks ACECs. In this alternative approximately 120 acres of valley sink scrub may be disposed. It is not known if these parcels actually contain valley sink scrub. If disposed of, valley sink scrub would likely be eliminated by oil and gas development or agriculture.

Joshua Tree Woodland. The impacts from grazing and disposal of Federal lands under this alternative would be the same as those described for Alternative 1. The impacts from mining under this alternative would be the same as those described for Alternative 2. Walker Pass would be designated as an ACEC under this alternative.

Giant Sequoia Forest. Case Mountain would be designated as an ACEC under this alternative. Public access to the Case Mountain ACEC would be acquired. All existing roads would be open to the public. Access off of existing roads would be restricted to foot and equestrian travel. Public access would result in increased visitation, which in turn would result in increased impacts to the giant sequoias. Large numbers of visitors may cause severely compacted soils which in turn may cause severe erosion around the sequoia roots due to the impermeability of the compacted soils. The impacts from grazing under this alternative should be the same as those described for

Alternative 1, although the Case Mountain grazing allotment would not be monitored for mulch under this alternative.

Water Resources

The Development Emphasis Alternative is the management option which would have the most impact on water resources. The same random event exceptions mentioned in the previous analyses, i.e. wild fire and hazardous materials mishaps, pose a potential threat. However, nonpoint pollution is the primary threat and impact to water quality. The reader is referred to the aforementioned alternatives for greater detail.

In excess of 60,000 acres are available for disposal under this alternative. The potential for nonpoint pollution increases with disposal, as these lands are no longer guaranteed protection by the implementation of Best Management Practices, which serve to mitigate soil resource losses and impacts to water quality. Refer to the discussion under the No Action Alternative.

Acquisition of lands and an allowance for new allotments could result in impacts of a similar or higher order than those described under the No Action Alternative. Range management practices are less protective under the Development Emphasis Alternative, with lower mulch levels and 50% utilization allowed, with no special provisions for areas having threatened and endangered species. Also, no seasonal restrictions are specified in riparian zones. Thus, a lower emphasis on resource protection under this alternative increases the probability of water resource degradation.

Other potential impacts, such as herbicide use, mining (solids or fluids), and hazardous material mishaps pose a potential threat but likely the impact is not significant. The reader is referred to the No Action Alternative for an in-depth discussion.

The emphasis on acquisition and protection is lower than that proposed under the Resource Protection Alternative, with less emphasis on ACECs, WSAs and wild and scenic rivers. In-place and proposed monitoring and projects on riparian zones would help offset any nominal increase in impacts expected. The reader is referred to Alternative 1 for further discussion.

The overall increase in recreation development and uses could increase impacts to water quality but not to a significant level. Expanded recreational uses will impact riparian zones under the Development Emphasis Alternative, although this may be balanced by elimination of dispersed camping in Keyesville and the North Fork of the Kaweah.

Wild and prescribed fires are potentially devastating, but are random events, as the discussion under the No Action Alternative implies.

Conclusion. Barring unforeseen major fire events, overall water quality impacts due to Bureau management and operations are expected to be minimal. However, a source of nonpoint pollution threatens all watersheds, in the form of excess sediment production. This is due to the drought underway at the time this analysis was prepared. Aforementioned controls and mitigation measures proposed to restore grazing lands, would minimize potential impacts. Regulations that are enforced and imposed on mining will minimize impacts. Impacts due to grazing and riparian management will be mitigated. Air regulations will have an indirect effect of curtailing impacts to water from OHVs, because of the requirements that will regulate and stabilize OHV use areas. In short, the impacts of this alternative would be similar to those described under Alternative 1.

Wildlife

Federally Listed Species

Blunt-nosed Leopard Lizard. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 224,363 acres of potential blunt-nosed leopard lizard habitat will be grazed by livestock. On

121,778 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 7,641 acres within the Carrizo Plain Natural Area, 7,090 acres will be managed to maintain >500 pounds of mulch per acre during the grazing season and 80 acres will be managed to maintain >400 pounds per acre. Approximately 471 acres will be managed with no minimum mulch level. All 7,641 acres will be managed to maintain <50% utilization on perennial species, including saltbush. All 7,641 acres, however, could be grazed at any time of the year.

Outside the Carrizo Plain Natural Area, 47,858 acres within potential blunt-nosed leopard lizard habitat will be managed to maintain >500 pounds of mulch per acre during the grazing season, and 8,350 acres to maintain >400 pounds per acre. Approximately 38,733 acres will be managed with no minimum mulch level. Minimum mulch levels of 500 pounds per acre are expected to be compatible with blunt-nosed leopard lizard habitat requirements. A minimum mulch level of 400 pounds per acre is unlikely to sustain the recommended 350 pounds of residual mulch at the beginning of the growing season.

Outside the Carrizo Plain Natural Area, 57,431 acres of saltbush scrub would be managed to maintain <50% utilization on perennial species, including saltbush. In these areas 27,327 acres could be grazed at any time of the year and 26,050 at some time outside the green season. The primary forage available outside the green season would be dry forage, saltbush and other perennial species. If available, livestock will usually select green forage over dry forage or browse. Under woody perennials, where it is warmer in the winter, herbaceous species may germinate earlier. During the late spring and summer, when it is moister and cooler under woody species, herbaceous species may stay greener longer. This may result in selective utilization of vegetation growing under saltbush, resulting in compaction of the soil and severe mechanical damage to saltbush. Approximately 2,738 acres of saltbush scrub will be grazed with no maximum utilization level and no minimum mulch level. Utilization beyond 50% may degrade saltbush habitat in the long term.

Approximately 5,376 acres with small patches or stringers of saltbush will be grazed with no maximum utilization level and no minimum mulch level. These areas may be grazed outside the green season. The effects of grazing outside the green season and utilization beyond 50% is described in the previous paragraph.

The effects of oil and gas development, mineral extraction and spraying of malathion would be the same as the effects described for Alternative 1.

Refer to Alternative 1 for a general discussion on oil and gas leasing. Under this alternative, leasing of areas for oil and gas development will be subject to standard lease terms. Surface disturbing activities in listed species habitat would be authorized subject to restrictions deriving from specific nondiscretionary statutes, including the Endangered Species Act. These restrictions would include: terms and conditions for minimizing take of animal species, and reasonable and prudent alternatives for avoiding jeopardy. In addition, other reasonable measures, including conservation recommendations, may be attached, so long as they do not require relocation of proposed operations greater than 200 meters or prohibit new surface disturbing operations for greater than 60 days. Under standard stipulations, the Bureau would not have the option of prohibiting all surface disturbing activities from the lease, unless it was required as part of a reasonable and prudent alternative to avoid jeopardy. Reasonable and prudent alternatives, however, must be consistent with the intended purpose of the action, must be able to be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction, and must be economically and technologically feasible. In certain circumstances, prohibiting surface disturbance from all or part of a lease may not be

consistent with the requirements for a reasonable and prudent alternative.

Under standard stipulations, even if areas of development could not be relocated to avoid areas of importance to listed animal species, the maximum amount of habitat loss is predicted to be 1,520 acres. The loss of 1,520 acres alone, is not expected to jeopardize the continued existence of a listed species in the short term. In most instances, it is expected that mandatory terms and conditions could significantly reduce impacts to listed species. Terms and conditions, however, cannot alter the basic design, location, scope, duration, or timing of the action, and may involve only minor changes. Cumulatively, the loss of 1,520 acres, as well as the limitation of what can be required through terms and conditions, and reasonable and prudent alternatives, may hamper recovery efforts, as well as jeopardize the continued existence of a listed species in the long term.

Within listed species habitat, approximately 20,000 acres will be available for potential disposal. Of these acres it is expected that 75% or 15,000 acres will actually be disposed. Each parcel would be analyzed as required by NEPA. Under this alternative, parcels supporting sensitive resources, including listed species habitat, may be exchanged for parcels supporting similar resources of equal or greater quality. It is estimated that 10% of the acreage transferred out of Federal ownership will be developed with roads and structures. This would result in the loss of 1,050 acres of potential listed species habitat. Development reduces the quality of adjacent undeveloped habitat through fragmentation and other indirect impacts. Once development has commenced in an area, further development of adjacent natural lands is likely.

Continued ACEC designation for Chico Martinez, and designation of Carrizo and Lokern as ACEC's will contribute to securing lands important in the recovery of the species. Acquisition of lands important to recovery by the California Department of Fish and Game and the Nature Conservancy will also contribute to securing lands important in the recovery of the species. These positive actions may reduce the likelihood that the continued existence of the species will be jeopardized in the short term. These actions, however, are not expected to be sufficient to lead to the downlisting of the species in the long term, and may not be sufficient to prevent the species from jeopardy in the long term.

Conclusion. Grazing at a moderate level is expected to be compatible with blunt-nosed leopard lizard habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with blunt-nosed leopard lizard habitat requirements. Continued development and operation of existing oil and gas fields may result in the eventual loss of some blunt-nosed leopard lizard populations in these areas, and negatively affect recovery of blunt-nosed leopard lizards. Issuing leases for oil and gas development may result in the removal and reduction of the quality of listed species habitat. Non-oil and gas mineral extraction may contribute to the loss of some lizard populations within and adjacent to existing oilfields. Spraying of malathion may have adverse effects to lizards and lizard prey species. Parcels supporting listed species habitat may be exchanged for parcels supporting similar resources. Continued designation of one ACEC and designation of two new ACECs are expected to benefit the species.

California Condor. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative 10,500 acres of essential condor habitat may potentially be disposed. At least 55,600 acres will be retained. Disposal of 240 acres of designated critical condor habitat will be considered only after Formal Consultation with the USFWS. At least 3,900 acres of critical condor habitat will be retained. Approximately 2,000 acres of public land adjacent to the Andean condor use area near Hopper Mountain will be retained.

The effects of oil and gas development would be the same as the effects described for Alternative 1.

Continued ACEC designation for Blue Ridge, and designation of Carrizo as an ACEC will contribute to securing lands important for the recovery of the species.

Conclusion. Some essential condor habitat and critical condor habitat may be disposed. Lands near Hopper Mountain will be retained. Continued oil and gas development at Sespe may have negative impacts to the condor release program. Continued designation of one ACEC and designation of one new ACEC is expected to benefit the species.

Giant Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 222,379 acres of giant kangaroo rat habitat will be grazed by livestock. On 121,778 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 7,641 acres within the Carrizo Plain Natural Area, 7,090 acres will be managed to maintain >500 pounds of mulch per acre during the grazing season and 80 acres will be managed to maintain >400 pounds per acre. Approximately 471 acres will be managed with no minimum mulch level. All 7,641 acres will be managed to maintain <50% utilization on perennial species, including saltbush. All 7,641 acres, however, could be grazed at any time of the year.

Outside the Carrizo Plain Natural Area, 40,768 acres within potential giant kangaroo rat habitat will be managed to maintain >500 pounds of mulch per acre during the grazing season, and 8,273 acres to maintain >400 pounds per acre. Approximately 43,919 acres will be managed with no minimum mulch level. Minimum mulch levels of 500 pounds per acre are expected to be compatible with giant kangaroo rat habitat requirements. A minimum mulch level of 400 pounds per acre is unlikely to sustain the recommended 350 pounds of residual mulch at the beginning of the growing season. Approximately 15,052 acres known to be occupied by giant kangaroo rats and 77,908 acres of potential habitat will be grazed during April 1 to June 15.

The effects of oil and gas development would be the same as the effects described for Alternative 1.

Leasing for oil and gas development within giant kangaroo rat habitat will be similar to that described for blunt-nosed leopard lizard habitat.

Impacts from disposal are also similar to those described for the blunt-nosed leopard lizard.

Designation of Carrizo and Lokern as ACEC's will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species, will contribute to securing lands important in the recovery of the species. These positive actions may reduce the likelihood that the continued existence of the species will be jeopardized in the short term. These actions, however are not expected to be sufficient to lead to the downlisting of the species in the long term, and may not be sufficient to prevent the species from jeopardy in the long term.

Conclusion. Grazing at a moderate level is expected to be compatible with giant kangaroo rat habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with giant kangaroo rat habitat requirements. Continued development and operation of existing oil and gas fields may contribute to the eventual loss of some giant kangaroo rat populations in the Buena Vista area. Issuing leases for oil and gas development may remove and reduce the quality of listed species habitat. Parcels supporting listed

species habitat may be exchanged for parcels supporting similar resources. Designation of two new ACEC's is expected to contribute to securing lands important in the recovery of the species.

Tipton Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 12,980 acres of Tipton kangaroo rat habitat will be grazed by livestock. Grazing in Tipton kangaroo rat habitat will be managed with no minimum mulch level and no maximum utilization level on perennial species. All areas grazed within potential Tipton kangaroo rat habitat are classified as saltbush scrub. Approximately 12,980 acres of saltbush scrub will be grazed outside the green season.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Approximately 20 acres with potential to support Tipton kangaroo rat are identified for potential disposal. Disposal of these lands, if they support the species or have potential to be used as a threatened and endangered species conservation area would negatively affect recovery efforts.

Continued ACEC designation for Goose Lake and ACEC designation for Lokern and Alkali Sinks will contribute to securing lands important in the recovery of the species. ACEC designation and the attendant increase in management is expected to reduce the level of unauthorized activities on these scattered parcels. Acquisition by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service and the Nature Conservancy, of additional lands in these areas and other areas important for the recovery of the species, will contribute to securing lands important in the recovery of the species. These positive actions may reduce the likelihood that the continued existence of the species will be jeopardized in the short term. These actions, however are not expected to be sufficient to lead to the downlisting of the species in the long term, and may not be sufficient to prevent the species from jeopardy in the long term.

Conclusion. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with Tipton kangaroo rat habitat requirements. Continued development and operation of existing oil and gas fields may contribute to the eventual loss of some Tipton kangaroo rat populations in the Buena Vista Valley. Issuing leases for oil and gas development may remove and reduce the quantity and quality of listed species habitat. Disposal of potential habitat may reduce the amount of Federally protected land available for use in a recovery program. Continued designation of one ACEC and designation of two new ACEC's is expected to contribute to securing lands important in the recovery of the species.

San Joaquin Kit Fox. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 240,923 acres of San Joaquin kit fox habitat will be grazed by livestock. On 121,778 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 7,641 acres within the Carrizo Plain Natural Area, 7,090 acres will be managed to maintain >500 pounds of mulch per acre during the grazing season and 80 acres will be managed to maintain >400 pounds per acre. Approximately 471 acres will be managed with no minimum mulch level. All 7,641 acres will be managed to maintain <50% utilization on perennial species, including saltbush. All 7,641 acres, however, could be grazed at any time of the year.

Outside the Carrizo Plain Natural Area, 5,650 acres within potential kit fox habitat will be managed to maintain >600 pounds of mulch per acre during the grazing season, 45,728 acres to maintain >500 pounds per acre, and 8,273 acres to maintain >400 pounds per acre. Approximately 51,850 acres will be managed with no minimum mulch level.

Minimum mulch levels of 600 pounds and 500 pounds per acre are expected to be compatible with kit fox and kit fox prey species habitat requirements. A minimum mulch level of 400 pounds per acre is unlikely to sustain the recommended 350 pounds of residual mulch at the beginning of the growing season.

Outside the Carrizo Plain Natural Area, 65,129 acres of saltbush scrub would be managed to maintain <50% utilization on perennial species, including saltbush. In these areas 27,327 acres could be grazed at any time of the year and 34,464 at some time outside the green season. Approximately 2,738 acres of saltbush scrub will be grazed with no maximum utilization level.

Approximately 5,376 acres with small patches or stringers of saltbush will be grazed with no maximum utilization level and no minimum mulch level. These areas may be grazed outside the green season. Grazing small patches of saltbush under this prescription is not expected to be compatible with species habitat requirements.

The effects of oil and gas development would be the same as the effects described for Alternative 1.

The effects of oil and gas leasing would be similar to that described for blunt-nosed leopard lizard habitat.

Impacts from disposal are also similar to those described for the blunt-nosed leopard lizard.

Continued ACEC designation for Chico Martinez and ACEC designation for Carrizo and Lokern will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service, and the Nature Conservancy of additional lands in these areas and other areas is securing lands important in the recovery of the species. These positive actions may reduce the likelihood that the continued existence of the species will be jeopardized in the short term. These actions, however are not expected to be sufficient to lead to the downlisting of the species in the long term, and may not be sufficient to prevent the species from jeopardy in the long term.

Conclusion. Grazing at a moderate level is expected to be compatible with kit fox and kit fox prey species habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with kit fox and kit fox prey species habitat requirements. Progression from low and moderately developed oilfields to heavily developed oilfields may eliminate kit fox from certain areas. Issuing leases for oil and gas development may result in the removal and reduction of the quality of listed species habitat. Parcels supporting listed species habitat may be exchanged for parcels supporting similar resources. Continued designation of one ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

Kern Primrose Sphinx Moth. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 13,207 acres of Kern primrose sphinx moth habitat will be grazed by livestock. Grazing in sphinx moth habitat will be managed with no minimum mulch level and no maximum utilization level on perennial species. Grazing with no minimum mulch levels is expected to favor filaree. Under this alternative grazing is not expected to be compatible with sphinx moth habitat requirements.

Approximately 10,240 acres of potential habitat for the moth is identified for possible disposal. Should these lands be disposed, land uses incompatible with the sphinx moth and its habitat may ensue.

Conclusion. Grazing with no minimum mulch levels and no maximum utilization level on perennial species is expected to favor filaree. Disposal of land in the Walker Basin may

reduce the amount of Federally protected lands available for use in a recovery program.

Cumulative Impacts: Federally Listed Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward increasing the likelihood that these species will continue to decline in the short-term. Bureau actions may also contribute toward preventing recovery of the species in the long term.

Special Status Species

San Joaquin Antelope Squirrel. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 231,209 acres of San Joaquin antelope squirrel habitat will be grazed by livestock.

On 121,778 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 7,641 acres within the Carrizo Plain Natural Area, 7,090 acres will be managed to maintain >500 pounds of mulch per acre during the grazing season and 80 acres will be managed to maintain >400 pounds per acre. Approximately 471 acres will be managed with no minimum mulch level. All 7,641 acres will be managed to maintain <50% utilization on perennial species, including saltbush. All 7,641 acres, however, could be grazed at any time of the year.

Outside the Carrizo Plain Natural Area, 52,818 acres within potential antelope squirrel habitat will be managed to maintain >500 pounds of mulch per acre during the grazing season, and 8,350 acres to maintain >400 pounds per acre. Approximately 40,619 acres will be managed with no minimum mulch level. Minimum mulch levels of 500 pounds per acre are expected to be compatible with antelope squirrel habitat requirements. A minimum mulch level of 400 pounds per acre is unlikely to sustain the recommended 350 pounds of residual mulch at the beginning of the growing season.

Outside the Carrizo Plain Natural Area, 65,129 acres of saltbush scrub would be managed to maintain <50% utilization on perennial species, including saltbush. In these areas 27,327 acres could be grazed at any time of the year and 34,464 at some time outside the green season. Approximately 2,738 acres of saltbush scrub will be grazed with no maximum utilization level.

Approximately 5,182 acres with small patches or stringers of saltbush will be grazed with no maximum utilization level and no minimum mulch level. These areas may be grazed outside the green season. Grazing small patches of saltbush under this prescription is not expected to be compatible with species habitat requirements.

The effects of road maintenance would be the same as the effects described for Alternative 1.

Continued ACEC designation for Chico Martinez and ACEC designation for Carrizo and Lokern will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game, and the Nature Conservancy of additional lands in these areas and other areas is securing lands important in the recovery of the species. These positive actions may reduce the likelihood that the continued existence of the species will be jeopardized in the short term. These actions, however are not expected to be sufficient to lead to the downlisting of the species in the long term, and may not be sufficient to prevent the species from jeopardy in the long term.

Conclusion. Grazing at a moderate level is expected to be compatible with antelope squirrel habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with antelope squirrel habitat requirements. Continued designation of one ACEC and designation of two new ACECs is expected to

contribute to securing lands important in the recovery of the species.

Mojave Ground Squirrel. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 740 acres of potential Mojave ground squirrel habitat may be disposed.

Under this alternative 46,250 acres of potential Mojave ground squirrel habitat will be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1.

Approximately 9,000 acres within potential Mojave ground squirrel habitat have a moderate to high potential for sand, gravel, and fill material. Approximately 2,900 acres are within the Walker Pass ACEC, where mineral extraction will be required to avoid Joshua Tree Woodlands. Approximately 140 acres of potential Mojave ground squirrel habitat may be removed by sand, gravel, and fill excavation.

Designation of the Walker Pass ACEC and acquisition of lands in the South Sierra Cooperative Management Area will contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level is expected to be compatible with Mojave ground squirrel habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with ground squirrel habitat requirements. Disposals and mineral extraction activities may adversely affect the species. Designation of one ACEC and acquisition of lands in the South Sierra Cooperative Management Area will benefit the species.

Short-nosed Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 222,094 acres of short-nosed kangaroo rat habitat will be grazed by livestock. On 121,780 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 7,641 acres within the Carrizo Plain Natural Area, 7,090 acres will be managed to maintain >500 pounds of mulch per acre during the grazing season and 80 acres will be managed to maintain >400 pounds per acre. Approximately 471 acres will be managed with no minimum mulch level. All 7,641 acres will be managed to maintain <50% utilization on perennial species, including saltbush. All 7,641 acres, however, could be grazed at any time of the year.

Outside the Carrizo Plain Natural Area, 37,468 acres within potential short-nosed kangaroo rat habitat will be managed to maintain >500 pounds of mulch per acre during the grazing season, and 8,273 acres to maintain >400 pounds per acre. Approximately 46,934 acres will be managed with no minimum mulch level. Minimum mulch levels of 500 pounds per acre are expected to be compatible with blunt-nosed leopard lizard habitat requirements. A minimum mulch level of 400 pounds per acre is unlikely to sustain the recommended 350 pounds of residual mulch at the beginning of the growing season.

Outside the Carrizo Plain Natural Area, 53,476 acres of saltbush scrub would be managed to maintain <50% utilization on perennial species, including saltbush. In these areas 27,327 acres could be grazed at any time of the year and 25,549 at some time outside the green season. Approximately 2,738 acres of saltbush scrub will be grazed with no maximum utilization level.

Approximately 4,982 acres with small patches or stringers of saltbush will be grazed with no maximum utilization level and no minimum mulch level. These areas may be grazed outside the green season. Grazing small patches of saltbush under this prescription is not expected to be compatible with species habitat requirements.

Continued ACEC designation for Chico Martinez, and ACEC designation for Carrizo and Lokern will contribute to securing lands important in the recovery of the species. Acquisition by the Bureau, California Department of Fish and Game, and the Nature Conservancy of additional lands in these areas and other areas is securing lands important in the recovery of the species. These positive actions may reduce the likelihood that the continued existence of the species will be jeopardized in the short term. These actions, however are not expected to be sufficient to lead to the downlisting of the species in the long term, and may not be sufficient to prevent the species from jeopardy in the long term.

Conclusion. Grazing at a moderate level is expected to be compatible with short-nosed kangaroo rat habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with short-nosed kangaroo rat habitat requirements. Continued designation of one existing ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

Mountain Plover. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 186,191 acres of mountain plover habitat will be grazed by livestock.

On 113,171 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1.

Outside the Carrizo Plain Natural Area, 12,709 acres within potential plover habitat will be managed to maintain >500 pounds of mulch per acre during the grazing season, and 4,320 acres to maintain >400 pounds per acre. Approximately 48,901 acres will be managed with no minimum mulch level. Minimum mulch levels of 500 pounds per acre are expected to be compatible with plover habitat requirements. A minimum mulch level of 400 pounds per acre is unlikely to sustain the recommended 350 pounds of residual mulch at the beginning of the growing season.

Continued ACEC designation for Chico Martinez and ACEC designation of Carrizo and Lokern will contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level is expected to be compatible with plover habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with plover habitat requirements. Continued designation of one existing ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

LeConte's Thrasher. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 252,616 acres of LeConte's thrasher habitat will be grazed by livestock. On 87,490 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 7,481 acres within the Carrizo Plain Natural Area, 7,090 acres will be managed to maintain >500 pounds of mulch per acre during the grazing season and 80 acres will be managed to maintain >400 pounds per acre. Approximately 311 acres will be managed with no minimum mulch level. All 7,481 acres will be managed to maintain <50% utilization on perennial species, including saltbush. All 7,481 acres, however, could be grazed at any time of the year.

Outside the Carrizo Plain Natural Area, 65,769 acres within potential thrasher habitat will be managed to maintain >500 pounds of mulch per acre during the grazing season, 8,273 acres to maintain >400 pounds per acre, and 19,950 to maintain >300 pounds per acre. Approximately 79,964 acres will be managed with no minimum mulch level. Minimum mulch levels of 500 pounds per acre are expected to be compatible with thrasher habitat

requirements. Minimum mulch levels of 300 and 400 pounds per acre are unlikely to sustain the recommended 350 pounds of residual mulch at the beginning of the growing season.

Outside the Carrizo Plain Natural Area, 52,821 acres of saltbush scrub would be managed to maintain <50% utilization on perennial species, including saltbush. In these areas 26,695 acres could be grazed at any time of the year and 25,526 at some time outside the green season. Approximately 2,738 acres of saltbush scrub will be grazed with no maximum utilization level. Outside saltbush scrub areas, 67,205 acres will be managed to maintain <50% utilization on perennial species. Outside saltbush scrub areas, 11,384 acres will be managed with no maximum utilization level.

Approximately 1,996 acres with small patches or stringers of saltbush will be grazed with no maximum utilization level and no minimum mulch level. These areas may be grazed outside the green season. Grazing small patches of saltbush under this prescription is not expected to be compatible with species habitat requirements.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Continued ACEC designation for Chico Martinez and ACEC designation of Carrizo and Lokern will contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level is expected to be compatible with thrasher habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with thrasher habitat requirements. Continued development and operation of existing oil and gas fields and issuing of leases for oil and gas development may result in the loss of some thrasher habitat. Continued designation of one existing ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

Cumulative Impacts: Special Status Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward increasing the likelihood that some of these species will become Federally listed in the short-term.

High Economic or Recreation Value Species

Refer to Alternative 1 for a discussion of the current status of these species.

The effects of livestock grazing on the Long Valley segment of the Monache deer herd would be the same as the effects described for Alternative 1.

Within the Kaweah deer herd range, approximately 17,830 acres will be grazed by livestock. Approximately 5,53 acres will be managed to maintain >600 pounds of mulch and 12.174 acres with no minimum mulch level. All 17,827 acres will be managed with no maximum utilization level on perennial species.

Approximately 386,486 acres of resident deer habitat, as well as habitat of other resident game species, such as quail and chukar, will be grazed by livestock. On 91,732 acres within the Carrizo Plain Natural Area and 107,280 acres within the Walker Pass CRMP area, the effects of livestock grazing would be the same as the effects described for Alternative 1. On 7,641 acres within the Carrizo Plain Natural Area, 7,090 acres will be managed to maintain >500 pounds of mulch per acre during the grazing season and 80 acres will be managed to maintain >400 pounds per acre. Approximately 471 acres will be managed with no minimum mulch level. All 7,641 acres will be managed to maintain <50% utilization on perennial species, including saltbush. All 7,641 acres, however, could be grazed at any time of the year.

Of the remaining 179,837 acres, 5,650 acres will be managed to maintain >600 pounds of mulch, 73,914 acres >500 pounds, 19,019 acres >400 pounds and 10,110 acres >300 pounds. Approximately 68,511 acres will be managed with no minimum mulch level. Approximately 64,249 acres will be managed not to exceed 50% utilization on perennial species and 64,640 will be managed with no maximum utilization level on perennial species. These figures include 39,600 acres of saltbush, of which 39,120 acres will be managed to not exceed 50% utilization on saltbush. Approximately 480 acres of saltbush would be managed with no maximum utilization level. All saltbush areas would be grazed outside the green season. Although perennial species may not be an important livestock forage component in these areas, perennial species are important as food and cover for wildlife species.

Continued ACEC designation for Blue Ridge and ACEC designation for Carrizo, Case Mountain and Walker Pass may benefit resident and migratory game species. Continued designation of the Monache-Walker Pass, Temblor and Caliente National Cooperative Land and Wildlife Management Areas will benefit resident and migratory game species.

Conclusion. Grazing at a moderate level is expected to be compatible with migratory and resident game species habitat. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with game species habitat requirements. Continued designation of one ACEC and three National Cooperative Land and Wildlife Management Areas, and designation of three new ACEC's are expected to benefit migratory and resident game species.

Cumulative Impacts: High Economic or Recreation Value Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, some Bureau actions may slightly contribute toward meeting the habitat requirements to maintain sufficient populations of game species while other Bureau actions will reduce the amount of game habitat available.

Aquatic, Wetland or Riparian Habitat

Refer to Alternative 1 for a discussion of the current status of these habitat types.

Under this alternative for 1.7 miles of inventoried reach, grazing will be confined to the green season. Approximately 56.2 miles of inventoried reach will be grazed outside the green season, with 5.4 miles grazed at any time during the year. Approximately 43.7 miles of inventoried reach will be grazed not to exceed 50% utilization on perennial species. Approximately 15.2 miles of inventoried reach will be grazed with no maximum utilization level on perennial species.

Under this alternative, for 39 inventoried springs, grazing will be confined to the green season. Approximately 568 springs will be grazed outside the green season, with 460 springs grazed at any time during the year. One inventoried spring, within the Carrizo Plain Natural area, will be grazed not to exceed 20% utilization on perennial species. Approximately 369 inventoried springs will be grazed not to exceed 50% utilization on perennial species. Approximately 237 springs will be grazed with no maximum utilization level on perennial species.

Nine parcels covering 720 acres with potential riparian resources may be disposed.

Designation of Salinas River, Frog Pond Mountain, Carrizo and Walker Pass as ACECs are expected to benefit riparian and wetland habitats.

Continued designation of Pt. Sal, and the Rocks and Islands ACEC is expected to benefit the intertidal habitat found on these parcels.

Conclusion. Livestock grazing may adversely affect riparian resources on some allotments. Riparian habitat may be present on 720 acres identified for potential disposal. Continued designation of two ACECs and designation of four new ACECs are expected to benefit riparian, wetland and intertidal habitat.

Cumulative Impacts: Aquatic, Wetland or Riparian Habitats

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions, such as land disposals, recreation development, and livestock grazing, may contribute toward a reduction in the overall quality and quantity of riparian habitats.

Significant Populations

Raptors. Refer to Alternative 1 for a discussion of the current status of these species.

Continued ACEC designation for Chico Martinez and Blue Ridge, and ACEC designation for Tierra Redonda, Carrizo, Lokern, and Case Mountain are expected to provide habitat conditions that will benefit raptor species.

Conclusion. Suitable habitat conditions will continue to be provided on public lands. Continued designation of two ACECs and designation of four new ACECs are expected to benefit raptor species.

Neotropical Migrants. Refer to Alternative 1 for a discussion of the current status of these species.

Continued ACEC designation for Pt. Sal and Blue Ridge and ACEC designation for Salinas River, Cypress Mountain and Walker Pass are expected to provide habitat conditions that will benefit these species.

Conclusion. Livestock grazing and land disposal may affect riparian resources used by some neotropical migrants. Continued designation of two ACEC's and designation of three new ACECs are expected to benefit these species.

Cumulative Impacts: Significant Populations

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward an overall decline in the quality and quantity of raptor and neotropical migrant nesting, wintering and foraging habitat.

Alternative 5 - Preferred

Air Resources

The Preferred Alternative will result in significant impacts to air quality from oil and gas activity, and nominal impacts from land disposal/retention and OHV activity. Other categories of activity should have negligible impacts to air resources. However, it should be noted that while air quality will be significantly impacted under this alternative, the difference between this alternative and any other alternatives is minimal.

This alternative is similar to Alternative 3 in terms of lands retained and amount of lands available for disposal, and resulting impacts from fugitive dust. The control of fugitive dust is required only in the San Joaquin Valley Air Basin (SJVAB); South Central Coast Air Basin (SCCAB) requirements are explained under the No Action Alternative.

Impacts from the use of Designated Routes of Travel (DROTs) are similar to those described under Alternative 3.

Retention or acquisition of lands with roads which fit the criteria as emission sources in the SJVAB will require the implementation of Reasonable Available Control Measures (RACM) and result in reduction of fugitive dust emissions to regulated levels.

Impacts due to mining activity are similar to Alternative 2. The potential for increased contribution of fugitive dust is about the same.

Emissions due to Fluid Mineral activity are comparable to those outlined under the Resource Protection Alternative, with the overall impact being significant.

Impacts due to OHV activity are comparable to the those detailed under Alternative 2, i.e. nominally significant. Refer to the Resource Protection Alternative for further discussion on requirements for staged events.

No significant impacts to air quality can be expected under the Preferred Alternative from forest management practices, noxious weed and pest control, or hazardous materials management. The reader is referred to Alternative 1 for an in depth discussion of those effects.

Effects on air quality due to wilderness designation and wild or prescribed fires under this Alternative are not significant and are the same as explained under the No Action Alternative.

Conclusion. Bureau management under a Preferred Alternative would result in measurable impacts to SJVAB and SCCAB air basin quality. Excluding wildfire, which is highly unpredictable, pollutants emanating from Bureau lands/operations are expected to decline and comparatively continue to contribute about the same percent of pollutants air basin-wide: less than 13% of the emissions from oil & gas operations; 15% of the emissions from mining; and an incidental amount from activities that contribute fugitive dust.

Cumulative Impacts

Cumulative impacts are the same as described for the No Action Alternative.

Land Tenure Adjustment

Impacts to Land Tenure Adjustment are the same as those described in Alternative 1, with the following exceptions or additions:

Under this alternative 55,000 acres of public land are available for disposal. It is expected that of these 55,000 acres, approximately 13,750 acres (25%) will be retained in Federal ownership due to environmental considerations. Ninety-five percent (52,250 acres) of the public land considered for disposal will be considered for exchange.

Much of the resource area would be unavailable for disposal due to high resource values. This includes 219,000 acres within 19 ACECs, as well as wilderness areas, wilderness study areas and lands within critical condor habitat (88,000 acres). This exceeds

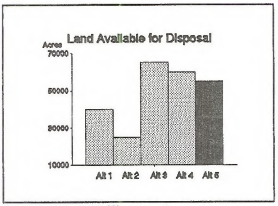


Figure 58

the amount identified in Alternative 1 by approximately 256,000 acres.

It is expected that approximately 162,000 acres of land will be acquired in the areas of Chimney Peak/Kennedy Meadows, Case Mountain, Blue Ridge, and the Carrizo Plain Natural Area. In addition, emphasis will be placed on acquiring lands within ACECs, NCLWMAs, wilderness areas, WSAs, threatened & endangered species conservation areas, and the South Sierra Cooperative Management Area. Public land within the Walker Pass ACEC is available for exchange only for lands within the ACEC. Under this alternative, it is expected that the 55,000 acres of public land available for disposal would provide enough lands to acquire approximately 35% of the area identified for possible acquisition.

Approximately 411,000 acres of mineral estate are available for oil and gas and geothermal leasing. Livestock grazing is authorized on approximately 396,867 acres (65%) of public land. These uses may delay or constrain the exchange or sale of the affected lands.

Due to the scattered and rural nature of the public lands, the proposed land tenure adjustments would not significantly affect growth and development near urban areas. It is estimated that over a 15-year period, 10% of the lands transferred to the private sector (5,500 acres) would be developed with roads, buildings, etc.

Conclusion. The conclusions for this alternative are the same as those described in Alternative 1, with the following modifications: An estimated 41,250 acres of public land may eventually be disposed under this alternative. Most lands with significant resources are unavailable for disposal. Lands available for disposal would provide enough lands to acquire approximately 35% of the area identified for acquisition.

Cumulative Impacts

Cumulative impacts for this alternative are the same as those described in Alternative 1.

Land Use Authorizations

Impacts to Land Use Authorizations are the same as those described in Alternative 1, with the following exceptions or additions:

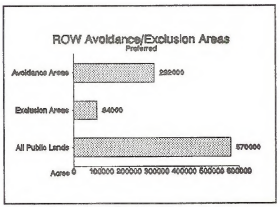


Figure 59

Land Use Authorizations would be constrained on public lands identified as right-of-way exclusion and avoidance areas. Public lands identified for disposal (55,000 acres), 19 ACECs (219,000 acres), cultural sites including the Ker 311, Granite Cave, and Walker Pass NHL, and wild and scenic river study areas (19,000 acres) have been identified as right-of-way avoidance areas. This is an increase of approximately 190,000 acres from those areas identified in Alternative 1 that would be constrained. Wilderness areas and wilderness

study areas (84,000 acres) have been identified as right-of-way exclusion areas. Designation of new wind energy sites would be considered on a case-by-case basis, but excluded within wilderness areas, wilderness study areas, ACECs, and Special Recreation Management Areas. Designation of new communication sites would be considered on a case-by-case basis.

Due to the constraints on public lands with high resource values, it is expected that land use applications may decline by 15%. Establishment of right-of-way exclusion and avoidance areas may cause development to increase on private lands, as well as create new routes for power lines and pipelines in order to avoid impacts to the high resource values on public lands. Land use restrictions will apply in the Valley and South Sierra Management Areas. Water diversions would not be allowed within four ACEC's and the Kernville Hot Springs area. Land uses within the Kettleman Hills area would require use of previously disturbed public lands, and leases or patents authorized by the Recreation and Public Purposes Act would not be allowed in this area.

Designated utility corridors are those existing and occupied corridors delineated in the Western Regional Corridor Study, 1986. These designations would encourage placement of right-of-way facilities within established, previously disturbed and preferred routes and could decrease the proliferation of roads, pipelines and utility lines. Construction of facilities within utility corridors and previously disturbed areas would be recommended. Use of corridors may cause conflicts among users and increase the costs to applicants if relocation of proposed facilities is necessary.

Conclusion. The conclusions for this alternative are the same as those described in Alternative 1, with the following changes: Land uses would be constrained where right-of-way exclusion and avoidance areas have been identified (377,000 acres). This may also reduce the number of land use applications by 15%. Designation of new utility corridors may reduce the proliferation of rights-of-way.

Cumulative Impacts

The cumulative impacts for this alternative are the same as those described in Alternative 1, except: Due to constraints placed on public lands with high resource values, uses that would otherwise have occurred on public lands will be displaced, causing the rate of development to increase on private lands. This increase is not expected to be significant, as public lands are a minor component of the overall land pattern.

Livestock Grazing Management

The impacts from the elimination of grazing and the proposed seasonal use restrictions for the purpose of protecting Federally listed species are the same as those under Alternative 3. These seasonal restrictions are shown again collectively in Figure 60 and are described in further detail in Appendix D-2.

The impacts of the 500 lbs/acre mulch requirement on grazing management and forage production would be the same as those under Alternative 1.

The impacts from the "green up" requirement and the perennial forage utilization levels would be the same as those under Alternative 3.

Range improvement construction could be restricted due to the presence of listed plants or animals. The use of forage on private lands could be indirectly limited due to restrictions to grazing use on public lands, if the private land is unfenced and intermingled with the public land.

Impacts from the proposed riparian management guidelines on grazing management and the forage resource would be the same as those under Alternative 1, but would now apply to three more allotments.

Impacts from proposed forest management, fire suppression actions, PM_{10} restrictions, and management of the Temblor and Caliente NCLWMAs on grazing management would be

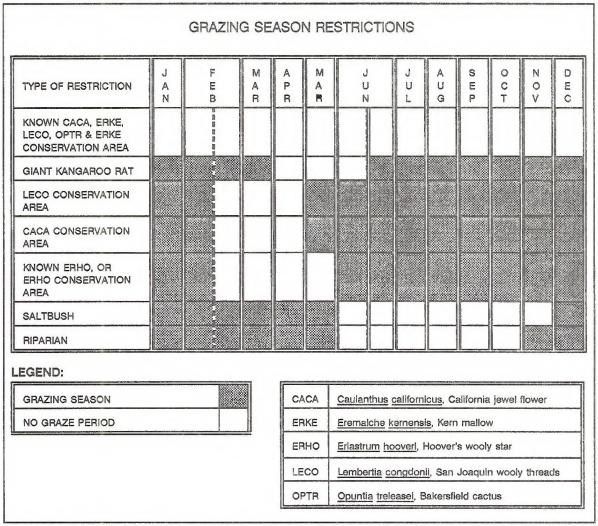


Figure 60

the same as those under Alternative 1.

Impacts to livestock grazing management from oil and gas development, as predicted in the reasonable foreseeable development scenario, would be the same as those specified under Alternative 1.

The establishment of designated routes of travel for recreational purposes, as proposed under this alternative could have beneficial impacts to grazing management as a result of increased restrictions on vehicle use. These beneficial impacts could include reduced forage losses from reduced vegetation destruction and reduced erosion, reclamation of roads, and reduced vehicle/livestock conflicts.

Proposed management of visual resources, wild, scenic and recreational rivers, areas of critical environmental concern, and the newly acquired lands within WSAs would have the same impacts to livestock grazing management as detailed under Alternative 1.

An estimated 62% of lands (55,000 acres) disposed under this alternative would fall within existing allotments and could result in up to 3,400 AUMs becoming unavailable to the current lessee/permittee. It is anticipated that the majority of these disposals will not be made to the current lessee/permittee due to economic constraints. An estimated 38% of lands disposed under this alternative would fall

outside existing allotments and would result in an estimated 1,400 AUMs becoming unavailable for grazing lease or permit. The proposed disposal of scattered public land parcels could improve management by eliminating unauthorized grazing on public lands and preventing costly range improvements needed. The proposed acquisition of 158,000 acres of private land could provide an estimated 8,000 AUMs of forage available for livestock grazing, if these parcels were not grazed under previous ownership. If these acquired lands were previously grazed, the grazing use on them could become more restricted than that which was allowed under private ownership. This could result in less forage being available to livestock for grazing. The proposed acquisition of private lands could improve management capabilities on 27 existing grazing allotments by blocking up scattered public parcels and providing opportunities for pasture systems, better livestock distribution through more efficient range improvement design and improved management control within these allotments. Other land use authorizations and transactions such as rights-of-way, withdrawals, access acquisitions, land permits and leases would cause insignificant impacts to grazing management.

Implementation of the proposed management under this alternative can be accomplished with present funding and staffing. Impacts due to constraints on funding and staffing would be the same as described in Alternative 1.

Conclusion. Selection of Alternative 5 would result in approximately 20% less forage being harvested from public lands. This impact is mainly caused by the restrictions to protect and provide recovery for Federally listed species. Alternative 5 would consequently result in approximately 3,432 acres of public land within seven existing allotments becoming totally unavailable for livestock grazing. The remaining authorizations would be reduced by at least 16% due to the protection measures for known populations of Federally listed species and the combination of all Federally listed species' restrictions. In addition, 4,174 AUMs within existing allotments would be lost due to land disposals and oil and gas development. The opportunity for providing proper grazing management and increasing its efficiency through range improvement projects would also be slightly limited by Federally listed species restrictions and special land designations proposed in this alternative. Flexibility of grazing management options would be negatively impacted on allotments within potential habitat for Federally listed species by the compression of grazing seasons into short use periods.

Socio-Economic Impacts

The socio-economic impacts of Alternative 5 would be the same as described under Alternative 3.

Conclusion. Under Alternative 5, there would be no significant impact to grazing operations in the Coast and South Sierra Management Areas. There would be a slight to moderate adverse economic impact (depending on land patterns) to most of the 52 allotments within the Valley Management Area due to management changes needed to protect Federally listed species.

Cumulative Impacts

The implementation of this alternative would result in cumulative impacts similar to those described in Alternative 3.

Mineral Resource Development

Under the Preferred Alternative, impacts to mineral development from requirements of the Endangered Species Act are expected to be unchanged from the No Action Alternative. The area proposed for wilderness is also unchanged.

The following ACECs with moderate or high mineral potential will be withdrawn or closed to mineral development. Tierra Redonda Mountain is prospectively valuable for phosphate. Within the Erskine Creek ACEC

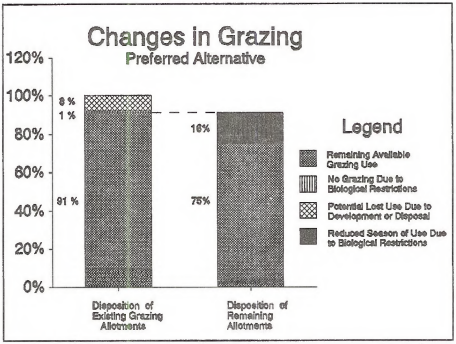


Figure 61

360 acres with moderate potential for tungsten and other metallic minerals is proposed for withdrawal. Piute-Cypress has moderate potential for gold and other metallic mineral resources. Within the Carrizo Plain ACEC, salt and sodium sulphate solid leasable minerals, have been produced from Soda Lake. The normally dry lake bed contains estimated reserves of at least one million tons of sodium sulphate. Areas just out of the Chico Martinez ACEC have been extensively mined for gypsum. The ACEC will be closed to mineral location under this alternative. About 7,000 acres of the Carrizo Plain ACEC have moderate potential for phosphate.

Adjoining the North Fork of the Kaweah River, VRM Class II guidelines and study or designation of the river as Wild and Scenic, will effectively withdraw the area from mineral development. The area has moderate potential for tungsten and related metals.

Within the Walker Pass ACEC disposals of mineral materials may only be made away from riparian zones, Joshua trees, sensitive plants and cultural resources. This requirement combined with the recommended Owens Peak and Rockhouse Wilderness Study areas, recommended Wild and Scenic River designations, and the Walker Pass National Historic Landmark will effectively close or withdraw much of the area to locatable or salable mineral development. Portions of these ACECs have high potential for locatable minerals, and moderate potential for locatable and salable minerals. The only sand and gravel operation for aggregate in the Lake Isabella area is located in the Walker Pass ACEC within the bed of Canebrake Creek. A portion of this operation is on reserved mineral estate. Although the wash at this location is active during flash floods, it is usually dry. Except for the site of the sand and gravel operation, Canebrake Creek is considered eligible for Wild and Scenic River Status. In addition, there are numerous Joshua trees out of the active bed. Expansion of this operation may be hampered if not denied due to these factors.

Conclusion. The acreage of Wilderness, Wilderness Study Areas, habitat of Federally listed species and other restrictions or impediments to mineral resource development which do not change between alternative are discussed in No Action Alternative of the Environmental Consequences.

The management prescriptions for Areas of Critical Environmental Concern will close 3,000 acres to geothermal resource development, 96,000 acres to solid leasable minerals, 11,000 to locatable minerals and 9,000 to salable minerals. In this alternative about 112,000 acres are VRM class II, which will severely hamper mineral resource development.

Cumulative Impacts

The cumulative impact to mineral development by restrictions, withdrawals and closures proposed in this alternative will be moderate.

Oil and Gas Development

The Preferred Alternative is similar to the No Action Alternative in its impacts to oil and gas within areas of moderate to high oil and gas potential. Under this alternative, 2,000 acres fall within non-discretionary closures, no lands fall within discretionary closures, 430,000 acres are open to leasing subject to major constraints, and 49,000 acres are open for leasing under standard lease terms. Negligible impacts are expected on the 458,000 acres of land with no or low oil and gas potential.

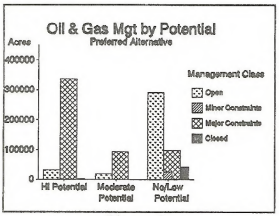


Figure 62

Primary impacts to oil and gas activities are those that affect the cost of exploration, development, and production. A positive impact, as a consequence of the implementation of this alternative, is allowing public lands to be offered in regular yearly lease sales. This will be beneficial to the exploration and development of oil and gas in the resource area.

Common negative impacts from the management of resources other than oil and gas, include possible delays to operations, requiring directional drilling, moving of operations to other sites, or even denial of operations. These all result in greater costs.

Oil and gas operations can only take place on BLM land if the operator is in compliance with local air pollution control districts (APCDs), as well as State and other Federal regulations. The BLM may require proof of compliance with local APCD requirements. Although the cost of compliance will not change, delays may result if documentation cannot be presented in a timely fashion. There may be additional minor costs as a consequence.

The management of ACECs under the Preferred Alternative would result in the discretionary withdrawal of 4,000 acres. The oil and gas potential is low in many of these areas, so minor impacts are expected.

Impacts From Land Uses

The retention of mineral estate with high oil and gas potential when land is disposed of will minimize the loss of oil and gas development opportunities. It will, however, create additional split estate lands. Exploration and development on these lands can be delayed and slightly more expensive due to the need to deal with the surface owner in addition to the BLM. Some acquisition may occur as a result of compensation for impacts to threatened or endangered species. This in turn facilitates oil and gas development by allowing an action to proceed in sensitive habitat. The identification of lands for acquisition should facilitate this compensation.

Lands with high to moderate oil potential which are also major areas of land acquisition include the Carrizo Plain and Kettleman Hills. Low to no oil and gas potential lands which are also major areas of land acquisition include Case Mountain, Blue Ridge, Chimney Peak, and the South Fork of the Kern River. Few lands in areas of high potential have been identified for disposal, therefore negative impacts as a result of sale or exchange will be minimal.

Impacts From Threatened & Endangered Species Management

Regular leasing of lands by the BLM could result in the issuance of up to 50 new leases

per year. It is expected that development could occur on all of the lease, a portion of the lease, or under the lease from adjacent lands. A controlled surface use stipulation (Stipulation C1 in Appendix G-3) is proposed for nearly all of the unleased lands with significant oil producing potential in the San Joaquin Valley. Therefore, once these lands are leased, inventories must take place to determine whether threatened and endangered species and their habitats exist on the subject lands prior to initiation of exploration and development activities. This stipulation can cause delays, denial of the application, or movement of the operating site - all of which add to costs.

The Controlled Surface Use Stipulation might preclude drilling on some leases if they include large tracts of threatened or endangered species, and if directional drilling is either not an option or would be too expensive. In that case the oil and gas resources could not be fully developed. However, this is expected to be a very rare occurrence.

The controlled surface use stipulation can be waived or an exception granted once inventories for threatened and endangered species are completed on land to be leased, if the exploration or development of the lease is not found to conflict with the species or its habitat. Currently existing leases, including those held by production, are limited by existing terms and conditions, and would be unaffected by any stipulations identified in this plan. It is estimated that impacts to oil and gas wildcat drilling from management of threatened and endangered species under the Preferred Alternative will therefore be minor to moderate on new leases and negligible on existing leases.

Conclusion. Most operating costs are beyond the scope of this plan, and will not be impacted by its implementation. Impacts to oil and gas by the Preferred Alternative will be similar to those of Alternative 1, No Action. Environmental issues will be a driving force in the development of oil and gas, and will cause the most impacts to oil and gas activities. These impacts are expected to be minor to moderate.

Cumulative Impacts

The cumulative impacts to the development of oil and gas are varied. External influences and their relationship to this plan as described under the No Action Alternative remain unchanged under this alternative, except as described below.

The Preferred Alternative in general will result in minor to moderate impacts on oil and gas development. Oil and gas operations will benefit from regular lease sales, without the potential delays which could result from separate environmental assessments which would be necessary for each offering if this plan were not implemented.

Negative impacts in the form of higher costs are expected from management of air quality, recreation, threatened and endangered species, and water issues. Each issue individually contributes minor impacts, their cumulative impacts may force some small operators out of business if the currently (1992) depressed local oil and gas economy continues through the life of the plan. Most operators will experience minor to moderate impacts however.

Enhanced oil recovery will increase at from 4% to 10% a year, there will be up to 200 APDs, and up to 8 wildcat wells drilled per year. Seismic disturbance, as mentioned above, is a short term disturbance; it will occur primarily within the Valley Management Area and will remain at 50 to 250 acres over the life of this plan. Other longer term disturbances from well drilling completion and production facilities will range from 1440 to 4530 acres over the plan life. A total of 280 to 770 acres of land are expected to be reclaimed from abandoned well pads and other operations. The resultant total net surface disturbance is expected to range between 960 to 3,960 acres. This is less than 1% of the 390,000 acres of Federal lands in the Valley and is considered a negligible

amount of disturbance. Only 13% of production and operations is from Federal lands, the remaining 87% encompass private land holdings. The effects to most operators will be minor, although operators who have large Federal holdings may sustain minor to moderate impacts.

Recreation

Off highway vehicle use would be designated as "limited" on most public lands, restricting vehicles to designated routes. Closed areas include the Point Sal, Frog Pond Mountain and Blue Ridge ACECs, Short Canyon, and the Machesna and Santa Lucia wilderness areas. No OHV open use areas would be available under this alternative. As unauthorized OHV areas and routes are signed and closed, there would be a loss of this form of unauthorized recreation use.

The Soda lake - Elkhorn Plains loop road, the Canebrake - Long Valley loop road, and the Kelso Valley Road would be designated as Backcountry Byways. This designation and subsequent publicity would result in an increase in motorized touring recreational use in these areas.

The disposal of up to 55,000 acres of small isolated parcels of public lands would have negligible impacts to recreation use. Most of these parcels have no public access, and their use is controlled by the adjacent landowners. Retention of these parcels would not benefit public recreational use or opportunities.

Acquisitions of land (generally through exchange of the aforementioned 55,000 acres) which increase public access would increase recreational opportunities and use. However such benefits would be limited, as public use of most acquired lands would be restricted to protect threatened and endangered species or other special resource values.

Acquisition of public access to the Duck Pond and Goose Lake would benefit birdwatching, environmental education and nature study opportunities in these areas. Non-motorized public access would be acquired to Cypress Mountain and pedestrian access to Point Sal, which would increase hiking, hunting and related outdoor pursuits in these areas. In addition, public access would be acquired to Case Mountain and Milk Ranch Peak, and an agreement with adjacent landowners for controlled public access to the Chico Martinez ACEC would be developed. This would increase hiking, hunting and related outdoor pursuits in these areas. Except for providing public access, no additional facilities would be developed for recreational use.

Camping within the 114,000 acre Carrizo Plain ACEC would be restricted to 2 locations. This would result in some loss of dispersed camping opportunities, which would primarily affect hunters who camp near their hunting area. Opportunities for dispersed camping would be eliminated on an additional 14,900 acres. A significant reduction in dispersed camping use and opportunities would occur in the Keyesville and North Fork of the Kaweah areas. The three major public use areas on the North Fork of the Kaweah River would be closed to dispersed camping and managed for extensive recreational day use. A developed campground with a campground host would be developed in the Keyesville area. This would eliminate dispersed camping while providing a developed campground in the area.

Subject to an environmental analysis, an additional raft launching site would be developed on the lower Kern River for use in low water years. This would assist rafting use during years of low flows.

The designation of an area for dog trials and a shooting range within the Temblor NCLWMA would benefit organized activities of this type. There are sufficient adjacent public lands to accommodate any other recreational users who might be displaced as a result.

About 7,300 acres would be closed to shooting, which would eliminate hunting and target shooting in those areas. However the impacts would be minimal since 40 acres in the Keyesville area and the Plute Cypress ACEC would remain open to shooting. There

are areas of public land nearby to the other closures for any displaced hunters and target shooters.

Cooperative management with Santa Margarita Lake County Park of adjacent public lands would increase the recreational opportunities and use of this area for hiking and other non-consumptive uses. There could be a minor loss of hunting opportunities on these lands.

Public lands within 1/4 mile of normal high water will be managed to protect the values of any waterway which has been found to be eligible for potential designation under the Wild and Scenic Rivers Act. Designation of a waterway as a wild, scenic or recreational river could result in a small increase in visitors from those attracted by the river designation.

Lands within wilderness study areas will be managed under the guidelines of the Wilderness Interim Management Policy, or if designated as wilderness, they will be managed under BLM Wilderness Policy. Lands within Wilderness Study Areas that are released from consideration for designation as wilderness will be managed to protect their primitive values. The designation of an area as wilderness would likely result in a minor increase in public use by those attracted by the wilderness label.

Enhancement of wildlife habitat to increase wildlife populations would improve hunting and wildlife observation recreational opportunities. Prescribed burning, by enhancing wildlife habitat and reducing the potential severity of wildfires, would also enhance recreational use. There would be a short term negative impact to scenic values from prescribed burning.

Enhanced riparian management would slightly benefit recreational use by providing better hunting, birdwatching, scenic quality, etc.

The management of ACECs and other lands for sensitive resources would not have a significant impact on recreation, although recreational activities may be restricted within the ACEC and some users displaced to other less sensitive areas. Public use off designated routes would be limited to pedestrian use on 2,100+ acres. However this would have only a minor impact, as little equestrian use occurs in the areas to be restricted.

Up to 100 white fir trees near Case Mountain and 200 pinyon pine trees near Chimney Peak would be available as Christmas trees for non-commercial use. A restricted amount of firewood cutting would be allowed. This would provide limited amounts of these types of recreational use.

Grazing would continue on 397,000 acres, about 96% of the area currently grazed. There would be minor additional restrictions on grazing under this alternative. Wildlife habitat conditions would be improved, resulting in increased hunting and wildlife observation recreational opportunities.

The retention or revocation of withdrawals would have limited impacts on recreational opportunities. Impacts would occur only if these lands are subsequently developed for mining or for oil and gas operations. Reasonably foreseeable developments in oil and gas development or mining activities would result in minimal impacts on recreational opportunities and uses.

Conclusion. Alternative 5 provides varied recreational experiences and opportunities on public lands within environmental constraints. A campground would be developed in the Keyesville area. Increases in public recreation use from 1,620,000 to 1,900,000 visitor use hours can mostly be attributed to urban expansion and population growth. Some of the increase can be attributed to increased publicity and public visitation to the Carrizo Plain ACEC and motorized touring on Backcountry Byways. Closure of the Kaweah River and Keyesville informal camping areas would result in a loss of dispersed camping opportunities and in user conflicts.

Cumulative Impacts

Visitor use will continue to adversely impact other resources in high recreation use areas. However the elimination of dispersed camping will greatly reduce the level of these impacts in the North Fork of the Kaweah and Keyesville areas. Campground development as well as the availability of most public lands for dispersed camping should provide for recreation opportunities that are in short supply elsewhere. OHV demand for open areas will continue to be diverted to Jawbone Canyon east of the Caliente Resource Area, and Hungry Valley to the south.

Vegetation

Federally Listed Species

California Jewelflower. Impacts from grazing under this alternative would be similar to those described in Alternative 1. In this alternative, the utilization rate for saltbush within threatened and endangered species conservation areas and potential habitat would be 20% of the current year's growth. This lighter rate of saltbush utilization may in effect shorten the grazing season of use.

Impacts from oil and gas exploration, leasing, and development under this alternative would be the same as those described in Alternative 1.

The listed species primarily occur within the Valley Management Area, where 21,000 acres shall remain available for disposal. Of these acres, it is expected that 75% or 15,750 acres will actually be disposed following NEPA analysis. As explained in Alternative 1, this would result in the loss of 15,750 acres that may be necessary for the recovery of the species. Approximately 10% of the acreage transferred to the private sector may be developed with roads, buildings, etc. This could result in the permanent loss of 1,575 acres of potential habitat for the listed species.

A total of 121,000 acres were identified as suitable for potential acquisition within the Valley Management Area. Emphasis would be placed on acquisition of high resource value lands within ACECs, NCLWMAs, WSAs, WSRs, and threatened and endangered species conservation areas for listed species. Acquisition of lands with listed or sensitive plant species would benefit these species by providing additional protection.

Designation of the Carrizo Plain as an ACEC, as well as continued acquisition within the Carrizo should aid in the recovery of the species.

San Joaquin Woolly-threads. Impacts from grazing under this alternative would be similar to those described for Alternative 1. In this alternative the utilization rate for saltbush within recovery and potential habitat would be 20% of the currents year's growth. This lighter rate of saltbush utilization may in effect shorten the grazing season of use.

Impacts from oil and gas exploration and development under this alternative would be the same as those described in Alternative 1.

The effects of land disposal and acquisition under this alternative are similar to those described for California jewelflower.

Known populations and potential habitat of San Joaquin woolly-threads within the Carrizo Plain would be protected by the designation of the Carrizo Plain as an ACEC. Acquisition of lands within existing ACECs may provide important recovery habitat.

Kern Mallow. The impacts of grazing under this alternative would be the same as those described in Alternative 1.

The impacts from oil and gas exploration, leasing, and development under this alternative would be the same as those described for Alternative 1.

Designation of the Lokern area as an ACEC under this alternative may benefit the species through special management, public education, and awareness.

Hoover's Woolly-star. Impacts from grazing under this alternative would be the same as those described for Alternative 3.

Impacts from oil and gas leasing and development under this alternative would be the same as those described for Alternative 1.

The effects of disposal and acquisition under this alternative are similar to those described for California jewelflower.

Designation of Carrizo, Lokern, and Kettleman Hills as ACECs may provide important recovery habitat for the species.

Bakersfield Cactus. Impacts from grazing under this alternative would be similar to those described for Alternative 1.

Impacts from oil and gas exploration, leasing, and development under this alternative would be the same as those described for Alternative 1.

The effects of disposal and acquisition under this alternative would be similar to those described for California jewelflower.

Conclusion. Grazing would likely not adversely affect known populations of Federally listed threatened or endangered species under this alternative. Potential habitat for the species may be adversely affected by grazing. Potential habitat which may be necessary for the recovery of the species may be lost due to oil and gas leasing and development, mineral development, and disposal of Federal lands. Designation of new ACECs and continued land acquisition within new and existing ACECs should benefit the species.

Cumulative Impacts: Federally Listed Species

See Alternative 1 for a discussion on cumulative effects.

Candidates

Annual Saltbush. Refer to Alternative 1 for a discussion of the effects of grazing. Designation of Carrizo, Lokern, and Alkali Sinks as ACECs may provide important recovery habitat for the three species of annual saltbush. Continued land acquisition within ACECs and threatened and endangered species conservation areas may help promote the recovery of these species.

Alkali Mariposa Lily. The impacts of grazing under this alternative would be the same as those described in Alternative 1. All other impacts from this alternative would be the same as Alternative 3.

Kelso Creek Monkeyflower. The impacts from grazing under this alternative would be the same as those described for Alternative 1. All other impacts from this alternative would be the same as Alternative 3.

Recurved Larkspur. The effects of grazing under this alternative would be the same as those described for Alternative 1. Designation of Carrizo Plain and Alkali Sinks as ACECs along with the continuation of the Goose Lake ACEC would aid in the recovery of the species.

Oval-Leaved Snapdragon. Designation of Carrizo Plain and Bluestone Ridge as ACECs will protect populations of oval-leaved snapdragon. These areas would be subject to major constraints for oil and gas leasing. Impacts from oil and gas exploration may still occur. Approximately 300 acres of habitat for the species may be disposed of under this alternative. Impacts from grazing under this alternative would be the same as those described for Alternative 1.

Forked Fiddleneck. Impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through increased habitat protection.

Hollisteria. Impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through increased habitat protection.

Jared's Pepper-grass. Impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Carrizo Plain as an ACEC is expected to benefit this species through increased habitat protection.

Owen's Peak Lomatium. Designation of the Walker Pass area as an ACEC may benefit the species through increased habitat protection.

Mouse Buckwheat. The impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of the North Fork Kaweah area as an ACEC may benefit the species through increased habitat protection.

Piute Mountains Jewelflower. The impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Erskine Creek as an ACEC and the continuation of the Piute Cypress ACEC will benefit the species through added protection.

Nine Mile Canyon Phacelia. The impacts from grazing under this alternative are the same as those described for Alternative 1. Designation of Walker Pass as an ACEC may aid in the recovery of the species.

Cumulative Impacts: Candidate Species

See Alternative 1 for a discussion on the cumulative effects on the candidate species.

Sensitive Plant Communities

Valley Saltbush Scrub. The impacts from grazing under this alternative should be the same as those described for Alternative 1.

Oak Woodland. The impacts from grazing under this alternative are similar to those described for Alternative 1. In this alternative any allotment that contains perennial species will have a maximum utilization rate of 50% of the current year's growth. It is possible that the utilization level on perennials will be reached before the mulch drops to the minimum level. The season of use would then be effectively shorter which may decrease the impacts to oaks from livestock. The perennial utilization level is important in areas that would receive a summer, fall, or winter season of use. The utilization level should allow for the maintenance of oak woodlands and may allow regeneration to occur.

Valley Sink Scrub. Nearly all the known valley sink scrub within the resource area would be included within the Carrizo Plain, Lokern, Goose Lake, and Alkali Sinks ACECs. Under this alternative approximately 120 acres of valley sink scrub may be disposed. It is not known if these parcels actually contain valley sink scrub. If disposed, valley sink scrub would likely be eliminated by oil and gas development or agriculture.

Joshua Tree Woodland. The impacts from disposal of Federal lands under this alternative would be the same as those described for Alternative 1.

The impacts from mining under this alternative would be the same as those described for Alternative 2. Walker Pass would be designated as an ACEC under this alternative.

The impacts from grazing under this alternative would be the same as those described for Alternative 1.

Giant Sequoia Forest. The impacts from this alternative would be the same as those described for Alternative 3.

Water Resources

The Preferred Alternative is a management option which differs only slightly from Alternative 2 for water resource development and protection. The same random events described under Alternative 1 - wild fire and hazardous materials mishaps, apply here as well. However, nonpoint pollution is the primary threat and impact to water quality. The reader is referred to Alternative 2 for greater detail.

The amount of lands (53,000 ac) available for disposal under this alternative is in the middle

range compared to all other alternative proposals. The potential for nonpoint pollution increases with disposal, as these lands are no longer guaranteed protection by BLM implementation of Best Management Practices, which serve to mitigate soil resource losses and impacts to water quality. Refer to the discussion under the No Action Alternative.

Acquisition of lands and an allowance for new allotments could result in impacts similar to those described under the No Action Alternative. Range management practices are as described for the Administrative Adjustment alternative. Proposed protection under this alternative would be an improvement over the No Action Alternative, but would not vary significantly. The impact to water resources are expected to be marginal, as described for Alternative 1.

Potential impacts such as herbicide use, mining (solids or fluids), and hazardous material mishaps pose a potential threat, but likely the impact is not significant. The reader is referred to the No Action Alternative for an in-depth discussion.

Riparian zone management, acquisition and protection is similar to that proposed under the Resource Protection Alternative with a slight de-emphasis on designated and expanded ACECs, WSAs and wild and scenic rivers. However, in conjunction with stabilized watersheds, in-place and proposed monitoring and projects, no significant impacts are expected, barring high order flood events. Refer to Alternative 1 for further discussion.

Fire and recreation impacts to water quality under the Preferred Alternative are as described under the No Action Alternative.

Conclusion. Barring unforeseen major fire events and high order hydrologic events, overall water quality impacts due to Bureau management and operations are expected to be minimal. However, a source of nonpoint pollution threatens all watersheds, in the form of excess sediment production. This is due to the drought underway at the time this analysis was prepared. Aforementioned controls and mitigation measures proposed to restore grazing lands, would minimize potential impacts. Regulations will be enforced and imposed on mining should minimize impacts. Impacts due to grazing and riparian management will be mitigated, thus minimizing impacts to water resources. In short, the effects of this alternative would be similar to those described under Alternative 1.

Wildlife

Federally Listed Species

Blunt-nosed Leopard Lizard. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 221,091 acres of blunt-nosed leopard lizard habitat would be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1.

Grazing would be discontinued on approximately 3,272 acres of blunt-nosed leopard lizard habitat. Discontinuation of grazing is expected to be compatible with blunt-nosed leopard lizard habitat requirements.

The effects of oil and gas development, oil and gas leasing, mineral extraction and spraying of malathion would be the same as the effects described for Alternative 1.

Within listed species habitat, approximately 21,000 acres would be available for potential disposal. Of these acres it is expected that 75% or 15,750 acres would actually be disposed. Each parcel would be analyzed as required by NEPA. Under this alternative, parcels supporting a significant quantity or quality of sensitive resources, including listed species habitat, would be retained. Parcels determined to support insignificant quantities or low quality sensitive resources could be exchanged for parcels supporting similar resources of equal or greater quality. It is estimated that 10% of the acreage transferred

out of Federal ownership would be developed with roads and structures. This would result in the loss of 1,050 acres of potential listed species habitat. Development also reduces the quality of adjacent undeveloped habitat through fragmentation and other indirect impacts. Once development has commenced in an area, further development of adjacent natural lands is likely.

Continued ACEC designation for Chico Martinez, and designation of Carrizo, Lokern and Kettleman Hills ACEC's would contribute to securing lands important in the recovery of the species. Acquisition of additional lands in these areas and other areas important for the recovery of the species by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service, and the Nature Conservancy would contribute to the eventual downlisting of the species in the long-term.

Conclusion. Grazing at a moderate level and discontinuation of grazing are expected to be compatible with blunt-nosed leopard lizard habitat requirements. Continued development and operation of existing oil and gas fields could result in the eventual loss of some blunt-nosed leopard lizard populations in these areas, and negatively affect recovery of blunt-nosed leopard lizards. Issuing leases for oil and gas development could result in the removal and reduction in the quality of listed species habitat. Non-oil and gas mineral extraction could contribute to the loss of some lizard populations within and adjacent to existing oilfields. Spraying of malathion could have adverse effects to lizards and lizard prey species. Parcels supporting a significant quantity or quality of habitat would be retained. Parcels supporting limited quantities or low quality habitat could be exchanged. Continuation of one ACEC and designation of three new ACEC's are expected to contribute to securing lands important in the recovery of the species.

California Condor. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative all designated critical condor habitat, 4,140 acres, would be retained. Potential disposal of 8,500 acres of essential condor habitat would be considered only after Formal Consultation with the USFWS. At least 57,590 acres of essential condor habitat would be retained. Approximately 2,000 acres of public lands adjacent to the Andean condor use area near Hopper Mountain would be retained.

The effects of oil and gas development would be the same as the effects described for Alternative 1.

Continued ACEC designation for Blue Ridge, and designation of Carrizo as an ACEC would contribute to securing lands important for the recovery of the species.

Conclusion. All critical condor habitat would be retained. Some essential condor habitat could be disposed. Lands near Hopper Mountain would be retained. Continued oil and gas development at Sespe could have negative impacts to the condor release program. Continued designation of one ACEC and designation of one new ACEC are expected to benefit the species.

Giant Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 236,430 acres of giant kangaroo rat habitat would be grazed by livestock.

The effects of livestock grazing would be the same as the effects described for Alternative 1.

Grazing would be discontinued on approximately 3,200 acres of giant kangaroo rat habitat. Discontinuation of grazing is expected to be compatible with giant kangaroo rat habitat requirements.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Impacts from disposal would be similar to those described for the blunt-nosed leopard lizard.

Designation of Carrizo and Lokern as ACEC's would contribute to securing lands important in the recovery of the species. Acquisition of additional lands in these areas and other areas important for the recovery of the species by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service, and the Nature Conservancy would contribute to the eventual downlisting of the species in the long-term.

Conclusion. Grazing at a moderate level and discontinuation of grazing are expected to be compatible with giant kangaroo rat habitat requirements. Continued development and operation of existing oil and gas fields could contribute to the eventual loss of some giant kangaroo rat populations in the Buena Vista Valley area. Issuing leases for oil and gas development could result in the removal and reduction in the quality of listed species habitat. Parcels supporting a significant quantity or quality of habitat would be retained. Parcels supporting limited quantities or low quality habitat could be exchanged. Designation of two new ACEC's is expected to contribute to securing lands important in the recovery of the species.

Tipton Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 11,979 acres of Tipton kangaroo rat habitat would be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1.

Grazing would be discontinued on approximately 1,000 acres of Tipton kangaroo rat habitat. It is unknown how discontinuation of grazing would affect Tipton kangaroo rats.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Approximately 180 acres with potential to support Tipton kangaroo rat are identified for potential disposal. Disposal of these lands, if they support the species or have potential to be used as a threatened and endangered species conservation area, would negatively affect recovery efforts.

Continued ACEC designation for Goose Lake and ACEC designation for Lokern and Alkali Sinks would contribute to securing lands important in the recovery of the species. ACEC designation and the attendant increase in management are expected to reduce the level of unauthorized activities on these scattered parcels. Acquisition of additional lands in these areas and other areas important for the recovery of the species by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service, and the Nature Conservancy would contribute to the eventual down-listing of the species in the long-term.

Conclusion. Grazing at a moderate level is expected to be compatible with Tipton kangaroo rat habitat requirements. It is unknown how discontinuation of grazing would affect Tipton kangaroo rats. Continued development and operation of existing oil and gas fields may contribute to the eventual loss of some Tipton kangaroo rat populations in the Buena Vista Valley. Issuing leases for oil and gas development could result in the removal and reduction in the quality of listed species habitat. Disposal of potential habitat could reduce the amount of Federally protected land available for use in a recovery program. Continued designation of one ACEC and designation of two new ACEC's are expected to contribute to securing lands important in the recovery of the species, and contribute to the eventual down-listing of the species in the long-term.

San Joaquin Kit Fox. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 237,651 acres of San Joaquin kit fox habitat would be grazed by livestock.
The effects of livestock grazing would be the same as the effects described for Alternative 1.

Grazing would be discontinued on approximately 3,272 acres of kit fox habitat. Discontinuation of grazing is expected to be compatible with kit fox and kit fox prey species habitat requirements.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Impacts from land disposal would be similar to those described for the blunt-nosed leopard lizard.

Continued ACEC designation for Chico Martinez and ACEC designation for Carrizo and Lokern would contribute to securing lands important in the recovery of the species. Acquisition of additional lands in these areas and other areas by the Bureau, California Department of Fish and Game, U.S. Fish and Wildlife Service, and the Nature Conservancy would be important for the recovery of the species.

Conclusion. Grazing at a moderate level and discontinuation of grazing, are expected to be compatible with San Joaquin kit fox and kit fox prey species habitat requirements. Progression from low and moderately developed oilfields to heavily developed oilfields could eliminate kit fox from certain areas. Issuing leases for oil and gas development could result in the removal and reduction in the quality of listed species habitat. Parcels supporting a significant quantity or quality of habitat would be retained. Parcels supporting limited quantities or low quality habitat could be exchanged. Continued designation of one ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

Kern Primrose Sphinx Moth. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 13,207 acres of Kern primrose sphinx moth habitat would be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1.

Approximately 7,500 acres of potential habitat for the moth is identified for possible disposal. Should these lands be disposed, land uses incompatible with the sphinx moth and its habitat could ensue.

Conclusion. Grazing at a moderate level may promote recovery by not favoring filaree. Disposal of land in the Walker Basin may reduce the amount of Federally protected lands available for use in a recovery program.

Cumulative Impacts: Federally Listed Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions could contribute toward reducing the likelihood that these species will become extinct in the short-term. Bureau actions could also contribute toward recovery of the species in the long term.

Special Status Species

San Joaquin Antelope Squirrel. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 227,937 acres of San Joaquin antelope squirrel habitat would be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1.

Grazing would be discontinued on approximately 3,272 acres of antelope squirrel habitat. Discontinuation of grazing is expected to be compatible with antelope squirrel habitat requirements.

The effects of road maintenance would be the same as the effects described for Alternative 1.

Continued ACEC designation for Chico Martinez and ACEC designation for Carrizo and Lokern would contribute to securing lands

important in the recovery of the species. Acquisition of additional lands in these areas and other areas by the Bureau, California Department of Fish and Game, and the Nature Conservancy would be important for the recovery of the species.

Conclusion. Grazing at a moderate level and discontinuation of grazing are expected to be compatible with San Joaquin antelope squirrel habitat requirements. Maintenance of dirt roads, especially in the Elkhorn Plain, could adversely affect the species. Continued designation of one ACEC and designation of three new ACECs are expected to contribute to securing lands important in the recovery of the species.

Mojave Ground Squirrel. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 700 acres of potential Mojave ground squirrel habitat could be disposed.

Approximately 46,250 acres of potential Mojave ground squirrel habitat would be grazed. The effects of livestock grazing would be the same as the effects described for Alternative 3.

Approximately 9,000 acres within potential Mojave ground squirrel habitat have a moderate to high potential for sand, gravel, and fill material. Approximately 2,900 acres would be within the Walker Pass ACEC, where mineral extraction would be required to avoid Joshua Tree Woodlands. Approximately 140 acres of potential Mojave ground squirrel habitat may be removed by sand, gravel, and fill excavation.

Designation of the Walker Pass ACEC and acquisition of lands in the South Sierra Cooperative Management Area would contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level is expected to be compatible with Mojave ground squirrel habitat requirements. Disposal and mineral extraction activities could adversely affect the species. Designation of one ACEC and acquisition of lands in the South Sierra Cooperative Management Area would benefit the species.

Short-nosed Kangaroo Rat. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 218,822 acres of short-nosed kangaroo rat habitat would be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1.

Grazing would be discontinued on approximately 3,190 acres of short-nosed kangaroo rat habitat. It is unknown how discontinuation of grazing would affect the short-nosed kangaroo rat.

Continued ACEC designation for Chico Martinez, and ACEC designation for Carrizo and Lokern would contribute to securing lands important in the recovery of the species. Acquisition of additional lands in these areas and other areas by the Bureau, California Department of Fish and Game, and the Nature Conservancy is important for the recovery of the species.

Conclusion. Grazing at a moderate level is expected to be compatible with short-nosed kangaroo rat habitat requirements. It is unknown how discontinuation of grazing would affect short-nosed kangaroo rats. Continued designation of one existing ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

Mountain Plover. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 182,639 acres of mountain plover habitat would be grazed by livestock. The effects of livestock grazing would be the same as the effects described for Alternative 1.

Grazing would be discontinued on 3,552 acres of potential plover habitat. Discontinuation of grazing is expected to be compatible with plover habitat requirements for most years. During a prolonged series of wet, high mulch years, discontinuation of grazing might not be compatible with plover habitat requirements.

Continued ACEC designation for Chico Martinez and ACEC designation of Carrizo and Lokern would contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level, is expected to be compatible with mountain plover habitat requirements. Discontinuation of grazing is expected to be compatible with plover habitat requirements for most years. Discontinuation of grazing during a prolonged series of wet, high mulch years might not be compatible with plover habitat requirements. Continued designation of one existing ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

LeConte's Thrasher. Refer to Alternative 1 for a discussion of the current status of this species.

Under this alternative, approximately 249,504 acres of LeConte's thrasher habitat would be grazed by livestock.

On 94,973 acres within the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 1.

On 154,531 acres outside the Carrizo Plain Natural Area, the effects of livestock grazing would be the same as the effects described for Alternative 3.

The effects of oil and gas development and oil and gas leasing would be the same as the effects described for Alternative 1.

Continued ACEC designation for Chico Martinez and ACEC designation of Carrizo and Lokern will contribute to securing lands important in the recovery of the species.

Conclusion. Grazing at a moderate level and discontinuation of grazing, are expected to be compatible with LeConte's thrasher habitat requirements. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with thrasher habitat requirements. Continued designation of one existing ACEC and designation of two new ACECs are expected to contribute to securing lands important in the recovery of the species.

Cumulative Impacts: Special Status Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions could contribute toward reducing the likelihood that some of these species will become Federally listed in the short-term. Bureau actions could make a contribution to preventing most of the species from becoming Federally listed in the long term.

High Economic or Recreation Value Species

Refer to Alternative 1 for a discussion of the current status of these species.

The effects of livestock grazing on the Long Valley segment of the Monache deer herd would be the same as the effects described for Alternative 1.

The effects of livestock grazing on the Kaweah deer herd range and resident game species would be the same as the effects described for Alternative 3.

Continued ACEC designation for Blue Ridge and ACEC designation for Carrizo, Case Mountain, Walker Pass and Erskine Creek could benefit resident and migratory game species. Continued designation of the Monache-Walker Pass, Temblor and Caliente National Cooperative Land and Wildlife Management Areas would benefit resident and migratory game species.

Conclusion. Grazing at a moderate level is expected to be compatible with migratory and resident game species habitat. Heavier grazing, where mulch levels are <400 pounds per acre or where utilization on perennial species is >50%, is not expected to be compatible with game species habitat requirements. Continued designation of one ACEC and three National Cooperative Land and Wildlife Management Areas, and designation of four new ACEC's are expected to benefit migratory and resident game species.

Cumulative Impacts: High Economic or Recreation Value Species

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions may contribute toward meeting the habitat requirements to maintain sufficient populations of game species.

Aquatic, Wetland or Riparian Habitat

Refer to Alternative 1 for a discussion of the current status of these habitat types.

The effects of grazing riparian areas within the Walker Pass CRMP area would be the same as the effects described in Alternative 1.

The effects of grazing riparian areas within the Carrizo Plain Natural Area would be the same as the effects described in Alternative 1.

For the remainder of riparian areas, the effects from grazing would be the same as the effects described in Alternative 3.

Six parcels covering 220 acres with potential riparian resources may be disposed.

Designation of Salinas River, Frog Pond Mountain, Carrizo, Walker Pass and Erskine Creek as ACECs is expected to benefit riparian and wetland habitats.

Continued designation of Pt. Sal and the Rocks and Islands ACEC is expected to benefit the intertidal habitat found on these parcels.

Conclusion. Livestock grazing could adversely affect riparian resources on some allotments. Riparian habitat might be present on 220 acres identified for potential disposal. Continued designation of two ACECs and designation of five new ACECs are expected to benefit riparian, wetland and intertidal habitat.

Cumulative Impacts: Aquatic, Wetland or Riparian Habitats

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions might contribute toward the improvement in overall quality of riparian habitats and could increase the amount of protected riparian habitats.

Significant Populations

Raptors. Refer to Alternative 1 for a discussion of the current status of these species.

Continued ACEC designation for Chico Martinez and Blue Ridge, and ACEC designation for Tierra Redonda, Carrizo, Lokern, Blue Stone Ridge, Kettleman Hills, Erskine Creek and Case Mountain are expected to benefit raptor species.

Conclusion. Suitable habitat conditions would continue to be provided on public lands. Continued designation of two ACECs and designation of seven new ACECs are expected to benefit raptor species through additional habitat protection.

Neotropical Migrants. Refer to Alternative 1 for a discussion of the current status of these species.

Continued ACEC designation for Pt. Sal and Blue Ridge and ACEC designation for Salinas

River, Cypress Mountain, Erskine Creek and Walker Pass are expected to benefit these species.

Conclusion. Livestock grazing and land disposal could affect riparian resources used by some neotropical migrants. Continued designation of two ACEC's and designation of four new ACECs are expected to benefit these species through additional habitat protection.

Cumulative Impacts: Significant Populations

For a general discussion of cumulative impacts refer to Alternative 1.

Under this alternative, Bureau actions could contribute toward improving the quality and quantity of raptor and neotropical migrant nesting, wintering and foraging habitat.

Short Term Uses vs. Long Term Productivity

Trade-offs between short term uses and long term productivity of resources are identified below. For this analysis, short term refers to the period of implementation of this plan (approximately 10 to 15 years). Long term refers to at least a 20 year period, during or beyond which the impacts of the particular alternative would still be felt. Resources not listed below did not have any trade-offs identified.

Air Quality

Implementation of Reasonable Available Control Measures and/or Best Available Control Measures on both Bureau managed operations and those managed by lessee/operators will result in a downward trend of criteria pollutants present in the ambient air from BLM managed activities. Multiple use management of public lands will continue as this occurs. Long range predictions will depend on resource demands and new technology, but a continued downward trend in criteria pollutants is foreseen under all alternatives.

Livestock Grazing

Short term effects to livestock grazing management from the proposed management under the No Action Alternative (Alternative 1) would include a loss of available forage and management flexibility in order to allow long term benefits to Federally listed species habitat. This trade-off primarily affects the Valley Management Area. In the long term, livestock grazing management may be benefitted by a more productive and reliable forage resource. An indirect long term impact could result from this alternative due to the added grazing pressure that may be placed on adjoining private lands, if proposed grazing management restrictions are incompatible with adjoining private land management. Proposed restrictions could cause smaller operations to be eliminated or replaced by larger operations which could withstand the short term impacts from the proposed management changes.

Short term effects to livestock grazing management from the proposed management under the Resource Protection Alternative (Alternative 2) would be of the same type described above. Benefits would accrue primarily within the Valley and the South Sierra Management Areas. In the short term, livestock grazing management may be benefitted by a more productive and reliable forage resource in those areas where livestock grazing is still allowed. Proposed restrictions, however, could cause smaller operations to be eliminated or replaced by larger operations which could withstand the short term impacts from the proposed management changes. Direct long term impacts of no grazing or over-conservative utilization levels would be to lower site productivity from excessive mulch layers and no or little utilization of perennial forage. An indirect long term impact would result from this alternative from the added grazing pressure that would undoubtedly be placed on the adjoining private lands from the loss or restriction of use of public land. This impact would be most severe where large amounts of public lands are removed from grazing and livestock operations continue to graze private lands at maximum stocking densities.

Effects under the Administrative Adjustment Alternative (Alternative 3) would be similar to those described under Alternative 1, except that perennial forage plants would become less productive in the long term.

Short term effects to livestock grazing management from the proposed management under the Development Emphasis alternative (Alternative 4) would remain the same as those currently experienced. Management is mainly influenced by forage production resulting from yearly climatic conditions. In the long term, livestock grazing management may be negatively impacted by the loss of forage due to reduced site potential on those areas that currently require more intensive management to conserve the forage resource or protect the soil surface.

Trade-offs under the Preferred Alternative (Alternative 5) are identical to those described under Alternative 3.

Recreation

There would be a short term loss of scenic quality from prescribed burning, but a long term improvement in wildlife habitat quality and productivity, thereby improving recreation opportunities. This is true under all alternatives. Under the Development Emphasis Alternative (Alternative 4), some decrease in long term productivity from OHV use could occur in limited areas.

Vegetation & Wildlife

Long term changes in saltbush structure can occur through over-grazing or fire. Depending on climatic conditions, topography, and proximity to other saltbush stands, recruitment of significant numbers of saltbush seedlings may occur only two or three times per century. Protection from fire and overgrazing, especially during recruitment years, is necessary to prevent long term changes in the saltbush community. This is true under all alternatives.

Irreversible or Irretrievable Commitments of Resources

This discussion of irreversible or irretrievable commitments of resources is limited to those that would occur as a result of these allocations. Impacts could result in the elimination of future management options. Resources other than those listed below did not have irreversible or irretrievable commitments of resources identified.

Livestock Grazing

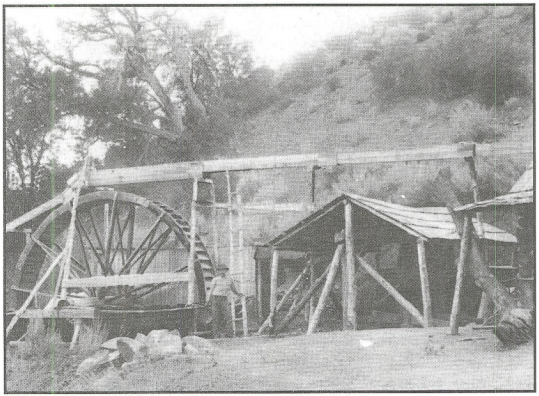
There were no irreversible or irretrievable impacts to the forage resource identified under any alternative. There may be an irreversible and irretrievable impact on those grazing operations that are forced out of business in the Resource Protection Alternative (Alternative 2), should those operations be unable absorb the proposed management changes within their current operations.

Vegetation & Wildlife

Irreversible and irretrievable commitments of resources occur when a wide range of future management options are precluded. Disposal of public lands would result in a loss of administrative control of all resource values on these lands except (in some cases) leasable and locatable minerals, and existing land use authorizations. This would preclude management of biological resources on those lands. This would occur under all alternatives.

Additional lands necessary for the recovery of listed, candidate, or other species of management concern may not be secured. Individual populations of listed species, which may be important to maintaining genetic diversity and geographic variability to prevent loss of the species, may be lost. This is true under all alternatives, possibly varying with the amount of land identified for acquisition.

Chapter 5
Consultation & Coordination



A water-wheel powered arrastra at the Emerald Mine near Loraine - 1890's (photo by W.C. Watts, California Division of Mines & Geology Collection)

Chapter 5 - Consultation and Coordination

Overview of the Process

A resource management plan is a comprehensive discussion, which to a practical extent includes all relevant activities and resources within the study area. However, only for identified critical issues are alternatives developed for thorough analysis in the environmental impact statement. The document and subsequent resource management cannot succeed if the vast wealth of knowledge held by the public and other organizations is not tapped.

The Council on Environmental Quality regulations (40 CFR 1501.7) and BLM's planning regulations (43 CFR 1610.4-1) require an early and open process (scoping) for determining the planning issues.

A Notice of Intent to Prepare the Resource Management Plan was published in the Federal Register on April 14, 1989 (54 FR 15028), and a Notice of Availability of Proposed Planning Criteria and Pre-Planning Analysis was published on October 17, 1989 (54 FR 42575). The Notice of Intent to Prepare the RMP announced the schedule of public scoping meetings and invited public participation. In addition, an announcement of the meetings was made in a letter to the mailing list of over 1300 persons and organizations. An Amendment to the original Notice Of Intent, notifying the public that the RMP would include an inventory of acquired lands for wilderness values, and inviting the public to nominate ACECs, was published on August 14, 1991 (56 FR 40341).

Six public scoping meetings were held in April 1989 for identifying public concerns in the issue identification process. A total of 68 concerns were identified at the public meetings, with access / land tenure adjustment and oil & gas issues being brought up most often. Other categories of concern included development and use conflicts, OHV use, and law enforcement / BLM presence.

Upon distribution of the Draft Resource Management Plan and Environmental Impact Statement (RMP/EIS), public meetings will be held and written comments will be accepted. Following the 90 day public review of the Draft RMP/EIS, a Proposed RMP/Final EIS will be prepared and released for a 30 day protest period. The Proposed RMP will also be sent to the Governor of California for a 60 day review of consistency with State and local plans, policies, and programs. The Approved RMP/Record of Decision will be prepared after any protests or inconsistencies have been resolved.

Distribution of the Draft RMP/EIS

Copies of the draft RMP/EIS will be furnished to numerous public libraries throughout the planning area for public review and reference. Copies will also be distributed to those expressing an interest in the planning process. In addition to individuals and others receiving a copy of the Draft RMP/EIS as a result of mailing lists or separate requests, the following agencies and organizations have been requested to review the document.

Federal Agencies

Department of Agriculture

Forest Service: Washington D.C., Angeles National Forest, Inyo National Forest, Los Padres National Forest, Sequoia National Forest

Soil Conservation Service: Salinas CA

Department of Defense

Army Corps of Engineers, South Pacific Division
Camp Roberts
Edwards Air Force Base
Lemoore Naval Air Station
Point Mugu Missile Range
Port Hueneme Naval Reservation
Vandenburg Air Force Base

Department of Interior

Bureau of Reclamation: Denver CO
Bureau of Mines: Washington D.C.
Fish & Wildlife Service: Washington D.C., Sacramento CA, Ventura CA
U.S. Geological Survey: Reston VA
Minerals Management Service: Washington D.C.
National Park Service: Washington D.C., San Francisco CA, Channel Islands National Monument, Kings Canyon National Park, Sequoia National Park

Other

Environmental Protection Agency: Washington D.C., San Francisco CA
Department of Energy: Elk Hills, Washington, D.C.

CALIFORNIA STATE AGENCIES

California Air Resources Board
California Coastal Commission
California Office of Planning & Research (State Clearinghouse)
California Polytechnic State University, San Luis Obispo
California State University, Bakersfield
Department of Fish & Game
Department of Forestry & Fire Protection
Department of Parks & Recreation
Department of Water Resources
Division of Oil & Gas
Mining & Geology Board
Native American Heritage Commission
Regional Water Quality Control Board San Luis Obispo & Sacramento
State Energy Commission
State Historic Preservation Office
State Lands Commission
University of California, Santa Barbara
Water Resources Control Board

LOCAL GOVERNMENT

County Supervisors

Kern County Board of Supervisors
Kings County Board of Supervisors
San Luis Obispo Board of Supervisors
Santa Barbara County Board of Supervisors
Tulare County Board of Supervisors
Ventura County Board of Supervisors

County and Local Agencies

City of Atascadero
City of Bakersfield
City of Fillmore
City of Oxnard
City of Paso Robles
City of Port Hueneme
City of San Luis Obispo
City of Santa Barbara
City of Santa Maria
City of Taft
City of Tehachapi
City of Ventura
Great Basin Unified Air Pollution Control District
Kern County Planning Department
Kings County Planning Department
S. E. Desert Air Basin Air Pollution Control District
San Joaquin Valley Unified Air Pollution Control District
San Luis Obispo Air Pollution Control District
San Luis Obispo County Planning Dept
Santa Barbara Air Pollution Control District
Santa Barbara County Planning Department
Tulare County Department of Planning & Development
Ventura Air Pollution Control District
Ventura County Planning Department

NATIVE AMERICAN ORGANIZATIONS

Kawaiisu Tribe
Kern Valley Indian Community
Northern Chumash Council
Ohlone Indian Center

Quabajai Indian Council
Santa Rosa Rancheria Reservation
Santa Ynez Reservation
Tule River Indian Reservation
United Chumash Council

BLM BAKERSFIELD DISTRICT ADVISORY COUNCIL

John H. Blake	Public-at-Large
Enrico Bongio	Public-at-Large
Lesley W. Clark Jr.	Non-renewable Resources
Kenneth Deboy	Transportation / Rights of Way
Jeffrey A. Halstead	Wildlife
Diane L. Mitchell	Environmental Protection
Daniel A. Paranick	Elected Government
Bernard Shanks	Renewable Resources
Sue Ann Vines	Recreation
Charles C. Wall	Public-at-Large

BLM BAKERSFIELD DISTRICT GRAZING ADVISORY BOARD

Steve Wooster
Oliver Milhouse
Ken Birdwell
Floyd Grigory
Rob Willis
Phil Rudnick
Carl Twisselman
Mark Johns

ELECTED OFFICIALS

CONGRESSIONAL REPRESENTATIVES

U.S. Senate

Honorable Alan Cranston
Honorable John Seymour

U.S. House of Representatives

Honorable Calvin Dooley
Honorable Robert Lagomarsino
Honorable Leon Panetta
Honorable William Thomas

STATE LEGISLATURE

California State Senate

Honorable Ed Davis
Honorable Gary Hart
Honorable Ken Maddy
Honorable Don Rogers
Honorable Rose Ann Vuich

California State Assembly

Honorable Jim Costa
Honorable Trice Harvey
Honorable Bill Jones
Honorable Tom McClintock
Honorable Jack O'Connell
Honorable Andrea Seastrand
Honorable Cathie Wright
Honorable Phil Wyman

LIBRARIES

Avenal Branch Library
Bakersfield College Library
Beale Memorial Library
California Polytechnic State University, San Luis Obispo Library
California State University, Bakersfield Library
Kings County Library
Oxnard Public Library
Paso Robles City Library
San Luis Obispo City Public Library
San Luis Obispo County Free Library
Santa Barbara Public Library
Santa Barbara Botanic Garden Library
Santa Maria Public Library
Tulare County Library
University of California Santa Barbara Library
Ventura County Library
Ventura Public Library

INTEREST GROUPS and ORGANIZATIONS

4-H Oil Company
American Forestry Association
Ancient Forest Defense Fund
ARCO Oil & Gas
Audubon Society

Bechtel Petroleum Operations
California All Terrain Vehicle Association
California Association 4 Wheel Drive Clubs
California Association of Resource Conservation District
California Cattlemen's Association
California Coastal Trails
California Farm Bureau Federation
California Federation of Mineralogical Societies
California Indian Legal Service
California Native Plant Society
California Off Road Vehicle Association
California Rifle & Pistol Association
California Trail Riders Association
California Wilderness Coalition
California Wildlife Federation
California Woolgrowers Association
Chevron USA, Inc.
Citizens' Review
Gold Coast 4x4s
Council of Conservation Clubs
Defenders of Wildlife
Desert Survivors
Estero Bay Gem & Mineral Club
Excel-Mineral Company, Inc.
Exeter Sportsmen's Council
Exxon USA
Friends of the River
Fuller Oil Company
Gear Grinders 4 Wheel Drive Club
Golden Cat Corporation
Good Sam Club Southern California
Halliburton Geophysical
High Desert Multiple Use Coalition
Humane Society of U.S.
Hunt Oil USA, Inc.
Independent Oil Producers
Kern County Mineralogical Group
Kern County Woolgrowers Association
League of Women Voters
Lynn Title Oil & Gas Services
Los Angeles Museum of Natural History
Mobil Exploration & Production U.S., Inc.
National Rifle Association of America
Natural Resources Defense Council
Occidental Petroleum Company
Oxnard Gem & Mineral Society
People for the West
Quail Unlimited
Riverside Ruff Riders
San Bernardino County Museum
Santa Barbara Historical Society
Santa Barbara Mineral & Gem
Santa Barbara Museum of Natural History
Santa Lucia Rockhounds
Santa Fe Energy Company
Santa Maria 4 Wheelers
Shell Western E & P Inc.
Sierra Club
Sierra Fat Tire Association
Southern California Gas Company
Sportmen's Council of Central California
Taft Sportsmen's Club
Texaco, Inc.
The Nature Conservancy
Trust for Public Lands
Tulare County Sportsmen's Council
Tule Gem & Mineral Society
Union Oil Company of California
United Mining Council
Ventura Gem & Mineral Society
Victory Oil Company
Western Mining Council
Western States Petroleum Association

Preparers

Introduction

The Caliente Resource Management Plan/Environmental Impact Statement (RMP/EIS) was prepared by specialists from the Caliente Resource Area Office and the Bakersfield District Office. The principal preparers contributed to nearly all facets of the plan and EIS.

The California State Office and Bakersfield District Office Planning, Minerals, and Resources staffs provided technical support and suggestions. Development of this RMP/EIS began in 1989.

Principal Preparers

Glenn A. Carpenter, Area Manager. Twenty years experience in natural resources management. B. S. Range Science, Brigham Young University. Provided management direction.

Stephen F. Larson, Team Leader. Thirteen years BLM experience. B. S. Botany, Brigham Young University. Coordinated preparation of the RMP/EIS.

Joyce Barreto, Clerk Typist. Three years BLM experience. Provided clerical and administrative support.

Patricia Bell, Geologist. Thirteen years experience in the BLM, the private sector, and university faculty. B. S. Paleontology, M. S. Stratigraphy, San Diego State University. Responsible for oil and gas input for the affected environment, environmental consequences, and appendices.

Susan E. Carter, Botanist. Two years BLM and USFS experience. B. A. Botany and Environmental Biology, Humboldt State University. Responsible for vegetation input.

Duane Christian, Archaeologist. Twelve years BLM experience. B. S. Anthropology, Brigham Young University. Responsible for cultural and paleontological resources input in the initial planning phases.

Karen M. Doran, Natural Resource Specialist. Three years BLM experience. B. S. Agricultural Science and Management, University of California at Davis. Responsible for the livestock management section.

Rosalinda Estrada, Realty Specialist. Three years experience in BLM. A. A. Business, and Paralegal Certification. Responsible for the land use and land tenure adjustment sections.

Pat Gallagher, Petroleum Engineer. Seven years BLM and private sector experience. B. S. Petroleum Engineering, Colorado School of Mines. Responsible for oil and gas input in initial phases of planning.

John B. Hervey, Outdoor Recreation Planner. Twelve years BLM experience. B.S. from Hamline University, M.S. from Iowa State University. Responsible for recreation input on environmental consequences, and review of remaining recreation input.

David W. Kayser, Archaeologist. Twenty-five years professional experience in the BLM, Park Service, Forest Service, State and private sectors, and other Federal agencies. B. S. Anthropology, Arizona State University. Responsible for cultural resources support and input for the affected environment and appendices.

Amy R. Kuritsubo, Wildlife Management Biologist. Ten years BLM experience. B.S. Wildlife Management, Humboldt State University. Responsible for wildlife management input.

Jaynee R. Levy, Outdoor Recreation Planner.

Sixteen years professional experience in the BLM, Park Service, South African Forestry Department, South African Department of Nature and Environmental Conservation (Cape Province), and private consulting. B. S. Cornell University; M. S. Forest Science, Yale University. Responsible for recreation and Wild & Scenic River elements, as well as general recreation input in the early planning phases.

Russ Lewis, Ecologist. Fourteen years BLM experience, and eight years with the USFS. B. S. Range Management/Agriculture, California State University, Chico. Responsible for forestry input; contributed on oil & gas and botany input.

Carlos F. Lopez, District Soil/Air/Water Program Lead. Fifteen years BLM, Forest Service, and Soil Conservation Service experience. B. S. Soil Science, California State Polytechnic University at Pomona. Responsible for air quality and water resource input.

Teresa Prendusi, District Botanist. Ten years professional experience in the BLM, other Federal agencies, and the private sector. B. A. Botany, Sonoma State University. Contributed botany input to the initial planning stages.

Kenneth L. Volpe, Supervisory Natural Resource Specialist. Sixteen years BLM experience. B. S. Range Management, Humboldt State University. Responsible for the livestock management section.

Larry M. Vredenburgh, Geologist. Thirteen years government experience, and one year in the private sector. B. S. Geology, University of California, Riverside. Responsible for the geology section, and contributed on the oil and gas section.

Other Preparers

Sam D. Fitton, Wildlife Biologist. Six years professional experience in BLM and State agencies. B. S. Biology, Ohio University, M. S. Natural Resources, Humboldt State University. Contributed wildlife input.

Wanda Hayes, Computer Programmer Analyst. Five years BLM experience. B. S. Mathematics, California State University, Bakersfield. Provided Geographic Information System maps and assistance.

Mark Milliken, Geologist. Seventeen years professional experience in the BLM, major oil companies, and as an engineering consultant. B. S. Geology, Central Washington University; M. S. Geology, Eastern Washington University. Responsible for the oil and gas reasonably foreseeable development.

Debbie L. Santiago, Fire Management Technician. Four years BLM experience. Responsible for fire management input.

Daniel Vaughn, Realty Specialist. 17 years professional experience in BLM and Soil Conservation Service. B. S. Soils and Plant Nutrition, University of California at Berkeley. Contributed input for the land tenure adjustment and land use authorization sections.

Acknowledgements

The preparers of the draft Caliente RMP/EIS wish to thank all of those BLM employees in the Caliente Resource Area, Bakersfield District Office, and California State Office, as well as the volunteers and members of the public, who contributed to the development of this plan. We would also like to acknowledge use of the following BLM plans to assist in the development of this plan, and extend our compliments to those who prepared them:

Draft Albuquerque RMP Amendment/EIS
Draft Bishop RMP/EIS
Draft Colorado Oil and Gas Leasing EIS
Draft Gunnison RMP/EIS
Draft South Coast RMP/EIS
Draft Redding RMP/EIS

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225

ACRONYMS

ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council of Historic Preservation
ADC	Animal Damage Control
AMP	Allotment Management Plan
APCD	Air Pollution Control District
APD	Application for a Permit to Drill
API	American Petroleum Institute
AUM	Animal Unit Month
BLM	Bureau of Land Management
BMP	Best Management Practice
BNLL	Blunt-nosed Leopard Lizard
CARB	California Air Resources Board
CCAA	California Clean Air Act
CDFA	California Department of Food & Agriculture
CDF&G	California Department of Fish and Game
CDOG	California Division of Oil and Gas
C&MU	Classification and Multiple Use (Act)
CFG	Cubic feet of gas
CFR	Code of Federal Regulations
CPNA	Carrizo Plain Natural Area
CRA	Caliente Resource Area
CRMP	Coordinated Resource Management Plan
DEIS	Draft Environmental Impact Statement
DROT	Designated Routes of Travel
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FR	Federal Register
FUP	Free Use Permit
GEM	Geology, Energy, and Minerals
GML	General Mining Law of 1872
GSA	Geothermal Steam Act of 1970
HMP	Habitat Management Plan
IM	Instruction Memorandum
IMP	Interim Management Plan
KGRA	Known Geothermal Resource Area
KGS	Known Geologic Structure
KLA	Known Leasing Area
MA	Management Area
MDB&M	Mount Diablo Base and Meridian
MFP	Management Framework Plan
MLA	Mineral Leasing Act of 1920
MMBOE	Million Barrels of Oil Equivalent
MOU	Memorandum of Understanding
MSA	Minerals Act of 1947
NCLWMA	National Cooperative Land & Wildlife Management Area
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NOI	Notice of Intent
NOX	Nitrogen Oxides
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
NTL	Notice to Lessee
NWSRS	National Wild and Scenic Rivers System
OHV	Off-Highway Vehicle
PCNST	Pacific Crest National Scenic Trail
PCT	Pacific Crest Trail
PLS	Pure Live Seed
PM_{10}	Particulate Matter <10 microns in size
PSD	Prevention of Significant Deterioration (Air Quality)
PWR	Public Water Reserve
R	Range (referring to legal description)
RA	Resource Area
RACM	Reasonable Available Control Measures
RMP	Resource Management Plan
RNA	Research Natural Area
ROC	Reactive Organic Compounds
R&PP	Recreation and Public Purposes
ROD	Record of Decision
ROW	Right-of-way
RT&E	Rare, Threatened, and Endangered
SAF	San Andreas Fault
SBB&M	San Bernardino Base and Meridian
SCCAB	South Central Coast Air Basin
SHPO	State Historic Preservation Officer
SJKF	San Joaquin Kit Fox
SJVAB	San Joaquin Valley Air Basin
SJVUAPCD	San Joaquin Valley Unified Air Pollution Control District
SMARA	Surface Mining and Reclamation Act of 1975
SOP	Standard Operating Procedures
SPG	Supplemental Program Guidance
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
T	Township (referring to legal description)
T&E	Threatened and Endangered Species
USDI	U.S. Department of the Interior
USFS	U.S. Forest Service
USF&WS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VRM	Visual Resource Management
WO	Washington Office
WSA	Wilderness Study Area
WSR	Wild and Scenic River
WSRA	Wild and Scenic Rivers Act

Glossary

Abandonment. The act of plugging back an oil well and rehabilitating the surface.

Activity Plan. A detailed action plan for a particular resource or combination of resources prepared subsequent to the land use plan. The activity plan details how to accomplish the stated objectives of the land use plan for a particular area, allotment, etc., by the use of site-specific projects and analysis.

Alkali Sink. Land-locked basin that receives seasonal runoff; the soils of which are permeated by soluble minerals (usually alkaline). A sharp vegetational change separates plants of such soils from those of surrounding areas.

Alkali Sink Scrub. The association of plants found in alkali sinks. (Same as Valley Sink Scrub).

Allotment. An area of land where one or more operators graze their livestock. It contains public land and can include parcels of private or state-owned land. The number of livestock and period of use are stipulated for each allotment. An allotment may consist of several pastures or be only one pasture.

Allotment Management Plan (AMP). A concisely written program of livestock grazing management, including supportive measures if required, designed to attain specific management goals in a grazing allotment. It is prepared with consultation, cooperation, and coordination with the permittee(s), lessee(s), or other affected parties.

Alluvial Fan. A fan-shaped deposit of alluvium, sometimes called an apron, dropped by a stream where its gradient lessens abruptly.

Alluvium. A general term for all unconsolidated material deposited by streams, including gravel, sand, silt, clay, and all mixtures of these.

Animal Unit. The equivalent of one mature (1,000 lbs.) cow or 5 sheep based upon average daily forage consumption of 26 lbs. dry matter per day.

Animal Unit Month (AUM). (1) The amount of feed or forage required by an animal unit for one month (i.e., 800 lbs./month). (2) Tenure of one animal unit for a period of one month.

Annual Range. Rangeland that contains primarily annual forage plants.

Annuals. Plants produced from seed which complete their life cycle in one growing season.

Antecedent Precipitation Index. The amount of moisture in a drainage basin before a storm.

Apiary. A collection of hives or colonies of bees kept for their honey. Special use permit is required to place an apiary on public land.

Archaeological District. A series of individual sites which occur in proximity and form a culturally related unit. One type of National Register entry.

Archaeological Resources. Sites, areas, structures, objects, or other evidence of prehistoric or historic human activities.

Archaeological Site. Geographic locale which may contain structures, artifacts, material remains, rock art, and/or other evidence(s) of past human activity.

Areas of Critical Environmental Concern (ACEC). Areas within the public land where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values,

fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards.

Auriferous. Containing gold.

Authorized Officer. Any employee of the Bureau of Land Management who has been delegated the authority to perform the duties described.

Avoidance Area. Area in which an activity or facility may not occur so as to avoid impacts to a sensitive resource.

Barrens. Areas of bare soil devoid of shrub species and most other vegetation. Does not include rocky areas.

Basin. a) a depressed area with no surface outlet; b) a low area in the Earth's crust in which sediments have accumulated.

Bedrock Mortar. Exposed rock or stone which exhibits grinding depressions formed by the milling of acorns and other foodstuffs by Indians.

Biodegradation. Decomposition by micro-organisms.

Biodiversity. The full variety of life and its associated processes. It includes the variety of living organisms, the genetic differences among them, and the communities and ecosystem in which they occur.

Borrow Pit. An excavated area where borrow (earth material taken from one location to be used for fill at another location) has been obtained.

Browse. The tender shoots, twigs, and leaves of trees and shrubs often used as food by deer, livestock, and other animals.

Cadastral Survey. A survey which creates, makes, defines, retraces, or establishes boundaries and subdivisions of the public land of the United States.

Caliente Formation. Geological area formed during the Miocene and Pliocene (1-26 million years before present) eras. Consists of a thick sequence of bedded claystone, sandstone, and conglomerate with a lesser amount of marine sedimentary and volcanic rock. Abundant claystone indicates former lake bottom.

Camp Site. Area used by Native Americans for various tasks. Artifact deposits and/or hearths are frequently present at these sites.

Candidate Species. Candidate species are any species not yet officially listed, but which are undergoing a status review or are proposed for listing according to Federal Register notices published by the Secretary of the Interior or the Secretary of Commerce. Candidate taxa are assigned to the following status categories:

> Category 1. Taxa for which the U.S. Fish and Wildlife Service currently has on file substantial information to support a proposal to list as threatened or endangered.
>
> Category 2. Taxa for which current information indicates that a proposal to list as threatened or endangered is possibly appropriate, but for which more information is needed to support a listing proposal.
>
> Category 3. Taxa that once were considered for listing as threatened or endangered but are no longer under such consideration. Such taxa are further divided into three subcategories, to indicate the reason for their removal from consideration:
>
> > 3A. Taxa which appear to be extinct.

3B. Names which do not represent distinct taxa meeting the Endangered Species Act's definition of "species".

3C. Taxa which are more abundant or widespread than previously believed and/or those that are not subject to any identifiable threat.

Casual Use. Activities that involve practices which do not ordinarily cause any appreciable disturbance or damage to the public lands, resources or improvements and, therefore, do not require an authorization. Casual collection of non-renewable resources (rocks, mineral specimens, petrified wood, semiprecious gemstones or common invertebrate fossils) shall not exceed 25 pounds per day plus one piece, for a total not to exceed 200 pounds per year.

Chalcedony. A variety of quartz; may be translucent or semitransparent, and has a nearly wax-like luster, a uniform tint, and a white, pale-blue, gray, brown, or black color.

Chaparral. An ecological community occurring widely in southern California and comprised of shrubby plants and trees especially adapted to dry summers and moist winters.

Class I Cultural Inventory. An inventory of the existing literature and a profile of the current data base for cultural resources, frequently utilized to guide field inventories.

Class II Cultural Inventory. A sample-oriented field inventory which is representative of the range of cultural resources within a finite study area.

Class III Cultural Inventory. An intensive field inventory designed to locate and record, from surface and exposed profile, all cultural resources within a specified area.

Classification of Lands. The process of determining whether the lands are more valuable or suitable for transfer or use under particular or various public land laws than for retention in Federal ownership for management purposes.

Clastic. Pertaining to a rock or sediment composed mainly of fragments derived from preexisting rocks or minerals and moved from their place of origin.

Clay Loam. A soil texture composed of 20 to 45 percent sand, 15 to 50 percent silt, and 27 to 40 percent clay.

Coliform. Relating to, or resembling bacteria found in the colon.

Color-of-Title. A claim based on an erroneous but good faith claim of title.

Communitization. An agreement to combine two or more mineral leases in order to have sufficient acreage to comply with the spacing required to drill a well.

Community Pit. A non-exclusive site, where generally small quantities of sand and gravel or other mineral materials are sold.

Compaction. see Soil Compaction

Compensatory Royalty. A royalty paid in lieu of drilling a well which would otherwise be required under the requirements of the lease.

Conditions of Approval. Conditions or provisions (requirements) under which an Application for Permit to Drill or a Sundry Notice is approved.

Conglomerate. Coarse-grained clastic sedimentary rock, composed of rounded to subangular fragments larger than 2 millimeters in diameter set in a fine-grained matrix of sand or silt, and commonly cemented by calcium carbonate, iron oxide, silica, or hardened clay. The consolidated equivalent of gravel.

Construction. The term "construction", when applied to the Water Quality and Watershed Protection issue, refers to: 1) any surface disturbing activities conducted on an oil and gas lease 2) any surface disturbing activities conducted under a Notice of Intent (NOI) to conduct geothermal resources exploration; 3) any surface disturbing activities conducted on a geothermal lease; 4) any facilities, structures, paved and/or permanent roads, parking lots, or holding tanks used in association with the development of locatable, saleable, or leasable (other than oil and gas) minerals. The term construction does not refer to the actual severance and removal of overburden, ore, saleable or leasable (other than oil and gas); and minerals at the mine site.

Controlled Surface Use (CSU). Use and occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operational constrains that may modify the lease rights. CSU is used for operating guidance, not as a substitute for the No Surface Occupancy or Timing stipulations.

Conveyance. A transfer of legal title.

Critical Wildlife Habitat. That portion of the living area of a wildlife species that is essential to the survival and perpetuation of the species either as individuals or as a population. In the case of listed species, area that is officially acknowledged by the USFWS as of highest importance for the species continued survival.

Cryptogamic Crust. A plant that reproduces by spores instead of by seeds (e.g. mosses, algae, and fungi), which occurs on the soil surface and generally produces an irregular crust.

Cultural Resources. A broad, general term meaning any cultural property and any traditional lifeway value, as defined below.

> Cultural Property. A definite location of past human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence. The term includes archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups.
>
> Traditional Lifeway Value. The quality of being useful in or important to the maintenance of a specified social and/or cultural group's traditional systems of (a) religious belief, (b) cultural practice, or (c) social interaction, not closely identified with definite locations. Another group's shared values are abstract, nonmaterial, ascribed ideas that one cannot know about without being told.

Cumulative Impact. The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Custodial Management. Refer to Appendix D.

Deer Herd/Unit/Subunit. Geographic management units designated by the California Department of Fish and Game for the purpose of tracking deer populations.

Desert Land Entry. The use of public land (that is desert in character) for agricultural uses when authorized by the Act of March 3, 1877.

Designated Critical Habitat. Land area that a sensitive animal or plant species is absolutely dependent upon for its recovery and continued survival.

Designated Right-of-Way Corridor. A parcel or parcels of public land that has been identified by law, by Secretarial Order, through the land use planning process, or by other management decision as being preferred location for existing and future right-of-way grants and suitable to accommodate more than one type of right-of-way or one or more rights-of-way which are similar, identical, or compatible.

Developed Water Source. A water source that has been altered by man with the result that water is diverted from the source or the physical structure of the source has been altered in some way (e.g., channelization).

Diagenesis. All the chemical, physical, and biologic changes undergone by a sediment after its initial deposition, and during and after its conversion into a solid rock, exclusive of weathering and metamorphism.

Diatom. A microscopic single-celled plant which secretes walls of silica in a great variety of forms. These silica walls may accumulate in sediment in enormous numbers.

Diatomite. A light-colored soft friable siliceous sedimentary rock consisting chiefly of silica walls from diatoms. Used as a filter aid and as an extender in paint, rubber, and plastics.

Diatomaceous Shale. An impure diatomite with much clayey matter and shaly partings.

Discovery. Where minerals have been found in sufficient quantity and quality to justify further expenditure, with a reasonable prospect of success, in developing a valuable mine.

Disposal. Transfer of ownership of a tract of public land from the United States to another party.

Dog Trial. A recreational event in which dispersed or mock hunting of game birds is done on foot or on horseback with dogs. Birds are released from planted cages.

Downlisting. Reclassifying an endangered species to threatened species status as authorized by the U. S. Fish and Wildlife Service.

Drought. An extended period with precipitation significantly below normal (less than 85% of normal annual precipitation). Drought may also occur during years with a normal annual average precipitation level, but with an abnormal distribution of precipitation (e.g. rain primarily during the hot months rather than during the winter and spring).

Drought Recovery. The period following a drought when rainfall approaches normal levels.

Easement. Right afforded a person or agency to make limited use of another's real property for access or other purposes.

Economic Limit of Haul. That point measured from the source of the mineral materials where the cost of hauling or transporting the mineral material no longer gives the deposit a positive value or worth.

Economically Valuable. A positive showing of value or worth of a mineral deposit after all costs of developing the mine, and extracting, removing, and marketing the material have been accounted for.

Ecotone. The transition zone between two plant communities. Usually this zone embodies some of the features of two communities, but has a characteristic structure of its own. It is usually a belt rather than a sharp line.

Emergency Actions. Operations which are in response to a natural or other type disaster, such as flooding, fires, and earthquakes.

Emergency Public Works Activities. Repair activities conducted by local, state, or Federal agencies in response to the destruction of a public asset such as roads, dams, buildings, canals, or levees, to name a few.

Endangered Species. Any species formally recognized by the U.S. Fish and Wildlife Service as in danger of extinction throughout all or a significant portion of its range.

Endangered Species Act (ESA) of 1973 (as amended). Federal law to ensure that no Federal action will jeopardize the continued existence of Federally listed or proposed threatened or endangered species of plants or animals.

Environmental Assessment (EA). A concise public document prepared to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact. It includes a brief discussion of the need for the proposal, alternatives considered, environmental impacts of the proposed action and alternatives, and a list of agencies and individuals consulted.

Eocene. An epoch of the early Tertiary period, after the Paleocene and before the Oligocene.

Ephemeral Stream. A stream which only flows for a short time each year in direct response to precipitation events.

Essential Habitat. Areas recommended for designation as critical habitat for threatened or endangered species.

Exchange. A conveyance of lands and interests therein from the United States to a person at the same time there is a conveyance of lands and interests therein from the person to the United States.

Exclusion Area. Land areas determined to be unavailable for corridor allocation or facility siting for reasons of unsuitability, legislative classification, or prior, unalterable allocation to uses incompatible with facility siting.

Exotic Species. Non-native species that has invaded a new area, or that has been introduced into an area by humans.

Facies. The sum of all primary lithologic and paleontologic characteristics exhibited by a sedimentary rock and from which its origin and environment of formation may be inferred; the general nature or appearance of a sedimentary rock produced under a given set of conditions; a distinctive group of characteristics that distinguishes one group from another within a stratigraphic unit.

Fawning Area. Site specific area utilized by mule deer for giving birth.

Federal Candidate Species. see Candidate Species

Federal Land. For the purpose of administering Section 28 of the Mineral Leasing Act of 1920, includes all land owned by the United States except land in the National Park System, land held in trust for an Indian or Indian Tribe, and land on the Outer Continental Shelf.

Federal Land Policy and Management Act of 1976 (FLPMA). Public Law 94-579, which gives the BLM legal authority to establish public land policy, to establish guidelines for administering such policy and to provide for the management, protection, development, and enhancement of public land.

Federal Mineral Estate. Subsurface minerals within a parcel of land that are Federally owned. Does not include the land surface. See Split Estate.

Federal Subsurface. Same as Federal Mineral Estate.

Federal Surface. Land surface which is Federally owned. Does not include subsurface minerals (mineral estate).

Filaree. An annual herbaceous plant (usually Erodium cicutarium) introduced from Europe that has high forage value for grazing in California. Filaree has been very successful in California to the point of dominating the landscape in many areas, and excluding the growth of native plants.

Flood Channel. A nearly level, elongated alluvial plain that borders a stream and is subject to periodic floods.

Fluid Minerals. Oil, gas, and geothermal resources.

Forage. All browse and herbaceous foods that are available to grazing animals.

Forage Utilization. The amount of current annual year's growth of a plant that is removed by grazing animals.

Forb. Non-woody herbaceous plants which are neither grass nor resemble grass.

Formation. The basic rock-stratigraphic unit in the local classification of rocks. A body of rock generally characterized by some degree of internal lithologic homogeneity or distinctive lithologic features (such as chemical composition or structures), by a prevailing shape, and by mapability at the Earth's surface or traceability in the subsurface.

Form Class. Describes the physical shape of a plant relative to the amount of browse available to a herbivore.

Fossiliferous. Containing organic remains.

Fragmentation. The division of habitat or populations of species caused by physical barriers (such as roads) or destruction of a portion of the habitat. Fragmentation can isolate individuals of a population from other individuals, preventing the exchange of genetic material. Fragmentation can also severely restrict the habitat available for the survival or recovery of a species.

Fuller's Earth. Very fine-grained, naturally occurring clay or clay-like, material possessing a high adsorptive capacity, consisting largely of hydrated aluminum silicates. Used as an adsorbent in refining and decolorizing oils and fats. It is a natural bleaching agent.

Good Forage Year. A growing season (usually November to April) that results in abnormally high total vegetative production because of high moisture levels and seasonal temperatures.

Grazing Authorization. The annual grazing bill generated by the grazing permit/lease.

Grazing Categories. A system of prioritizing management implementation emphasis for grazing allotments. Refer to Appendix D-3.

Grazing Fee Year. Begins on March 1 of each year and ends on February 28 of the following year.

Grazing Permit/Lease. A document authorizing use of the public land for the purpose of grazing livestock.

Green Season. The time during the annual active growth season of a plant, starting from emergence through dormancy or cure-out in annual plants.

Guzzler. A water catchment and storage device utilizing a concrete, asphalt, or steel apron to catch rainfall and a buried tank (usually fiberglass) to store it. Guzzlers usually store about 900-1,000 gallons of water, when full. They are accessible, at ground level to small wildlife, by means of a ramp leading into the tank.

Gypsite. Calcium sulphate ($CaSO_4$) disseminated in soil, generally 70% gypsum used mainly as a soil conditioner/additive.

Habitat. The natural environment of a plant or animal.

Hazardous Waste. A solid waste or combination of solid waste which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause or significantly contribute to an increase of mortality or increase in serious, irreversible or reversible incapacitating illness; or to pose a substantial or potential hazard to human health or to the environment when improperly treated, stored, transported or disposed of, or otherwise managed.

Herbaceous Matter. Having the texture, color, etc., of an ordinary foliage leaf.

Herbivory. Pertaining to plant eating.

Historic . Refers to period after permanent Euro-American settlement in California; post A.D. 1769.

Historic Mining Site. Evidences of mining activities which pre-date the 1930s, usually consisting of ore deposits, prospects, processing facilities, residences, and support facilities.

Historic Resource or Historic Property. Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. The term includes, for purposes of these regulations, artifacts, records, and remains that are related to and located within such properties. The term "eligible for inclusion in the National Register" includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet National Register listing criteria.

Holder. Any State or local governmental entity, individual, partnership, corporation, association,or other business entity receiving or using a right-of-way.

Hydrocarbons. Organic chemical compounds of hydrogen and carbon atoms that form the basis of all petroleum products, including oil and gas.

Hypabyssal. Pertaining to an igneous intrusion or to the rock of that intrusion which occurs at a moderate depth from the surface.

Incidental Use. Personal collection and use of a minor amount of natural resources such as pinyon nuts or sand and gravel. Incidental use is limited to an armload of plant material or 200 pounds of mineral material.

Infiltration Rate. The rate at which water moves through the soil surface and into the ground.

Infrastructure. The basic, underlying framework or features of something especially of a technological kind, as communication and transport facilities, etc. of an organization.

Inholding. A parcel of non-public land surrounded by public land.

Interim Management Policy. The Bureau's management policy for land under wilderness review. The policy is to continue resource use on land under wilderness review in a manner that maintains the area's suitability for preservation as wilderness (referred to as the Non-impairment Standard).

Jeopardy. A determination made by the U.S. Fish and Wildlife Service that a proposed activity would reduce the likelihood of the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.

Key Browse Plants. A shrub species to which ungulates and possibly other herbivores show a distinct preference as food.

Known Geological Structure (KGS). Technically the trap in which an accumulation of oil or gas has been discovered by drilling and determined to be productive, the limits of which include all acreage that is presumed productive.

Known Geothermal Resource Area (KGRA). An area in which the geology, nearby discoveries, competitive interests, or other indicia would, in the opinion of the Secretary, engender a belief in humans who are experienced in the subject matter that the prospects for extraction of geothermal steam or associated geothermal resources are good enough to warrant expenditures of money for that purpose.

Known Solid Mineral Leasing Area (KLA). An area of Federal land approved by the Bureau for competitive leasing (43 CFR 3500) where geologic characteristics are well known by drilling, geological studies and geophysical methods, the deposit can be mined using current mining methods and where geologic characteristics meet minimum acceptable standards.

Land Tenure Adjustment. A change in the public land ownership or jurisdiction accommodated through the sale, exchange or withdrawal of public land or acquisition of private lands, for the purpose of consolidating the public lands to improve their management, and protection and enhancement of their resources.

Leasable Minerals. Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulphur, potassium and sodium minerals, and oil and gas. Geothermal resources are also leasable under the Geothermal Stream Act of 1970.

Lease. An authorization to possess and use public lands for a fixed period of time.

Lease Notice. Provides more detailed information concerning limitation that already exist in law, lease terms, regulations, or operation orders. A Lease Notice also addresses special items the lessee would consider when planning operations, but does not impose new or additional restrictions.

Legal Constraints. Those laws and regulations which limit and guide the Bureau in its decisions and authorizations in the conduct of its responsibilities of managing the public land.

Lieu Selection or Indemnity Selection. A selection made to compensate for lands that were lost.

Listed Species. Plants and animals that are officially recognized as being threatened or endangered by Federal or State governments. Federally listed species are protected under the Federal Endangered Species Act. State listed species are protected under the California Endangered Species Act.

Lithic Scatter. The occurrence of flaked stone tools and flakes, from isolates to large dense scatters. Generally, workshop areas sometimes associated with quarries.

Lithofacies. A lateral, mappable subdivision of a designated stratigraphic unit (a unit in the classification of a rock sequence with respect to any of the many characters, properties, or attributes that rocks may possess).

Locally Rare. Uncommon in a particular area usually due to habitat constraints.

Locatable Minerals. Minerals or materials subject to disposal and development through the Mining Law of 1872, (as amended). Generally includes metallic minerals such as gold and silver and other materials not subject to lease or sale (some bentonites, limestone, talc, some zeolites, etc.).

Lode Claim. A mining claim on public land which contains valuable minerals occurring in a vein or lode. Lode mining claims may be located upon discovery of a vein or lode of quartz or other rock in place bearing gold, silver, cinnabar, lead, tin, copper, or other valuable deposits. A lode claim shall not exceed 1,500 feet in length along the course of the vein or lode. Also a claim must not extend more than 300 feet on each side of the middle of the vein at the surface.

Long-term Impacts. In this document, refers to the impacts which would occur in a time period extending beyond the 10 to 12-year life of the plan.

Major Constraints. Constraints placed on an oil and gas lease which could result in a severe restriction on lease development. Major constraints include no surface occupancy, timing limitation stipulations of more than 4 months, or other stipulations necessary for resource protection. Often these stipulations may be waived or modified following resource inventories. Major constraints for the extraction of solid leasable minerals and mineral materials include movement of the proposed activity to avoid State or Federally listed plant and animal species; movement of the proposed activity to avoid species that are proposed or are candidates for Federal listing; timing delays for raptor nesting, listed species, or for transplanting sensitive plant species; and off-site mitigation or compensation for impacts to listed species.

Management Area. A discrete portion of the total planning area that has common features, problems, and/or management needs, that lends itself to specific management decisions.

Market Area. That area in which a mineral material can be extracted, hauled and marketed, and still have a value or worth.

Mast. Acorns and nuts accumulated on the forest floor and often serving as food for animals.

Memorandum of Understanding (MOU). Refers to a "handshake" agreement (i.e. an agreement to agree). An MOU is appropriate for mutual assistance relationships with all types of entities and organizations in which no funds or anything else of value are transferred.

Metamorphism. Textural and mineralogical changes which occur in solid rocks in response to changes in temperature, pressure, and/or chemistry.

Meteoric Waters. Precipitation.

Midden. Dark-colored soil deposits formed from organic residues remaining from Indian campsites, frequently containing artifacts and animal and plant remains of high scientific value.

Milling Station. An area containing milling implements such as manos, metates, bedrock mortars, and milling slabs.

Mill-Site Entry. Non-mineral public land to be used as a mill site under the General Mining Laws of 1872, as amended, for the extraction of ore or in the development of a lode claim.

Mineral Entry. Prospecting, exploration, location, and development of locatable mineral deposits on public land as authorized by the General Mining Law of 1872 (17 Stat 91).

Mineral Materials. Also referred to as salable, or common variety minerals. Consists of common varieties of sand, stone, gravel, clay, pumice, cinders, etc., as defined by 61 Stat 681, and 69 Stat 367. These minerals are sold under contract by the Bureau.

Mineral Material Site. An area where the Bureau has authorized the removal of mineral material pursuant to the Acts of 1947 and 1955. These may be individual free use or sale areas, common use areas, or community pits.

Minor Constraints. Constraints placed on an oil and gas lease which do not severely restrict development on that lease. Minor constraints for oil and gas leasing may include timing limitations, controlled surface use, or special administrative stipulations. Lease notices also fall under this category.

Modification (oil and gas). Fundamental change to the provisions of a lease stipulation, either temporarily or for the term of the lease. A modification may, therefore, include an exemption from or alteration to a stipulated requirement. Depending on the specific modification, the stipulation may or may not apply to all other sites within the leasehold to which the restrictive criteria applied.

Modified Fire Suppression Plan. A plan prepared to consider alternatives to intensive fire suppression action when conditions are such that they would approximate those being strived for under prescribed burning criteria.

Monitoring. Specific studies which evaluate the effectiveness of actions taken toward achieving management objectives.

Mouse and Rat Holes (oil and gas). Temporary vertical holes used for pipe storage during oil drilling.

Mulching. A covering, as of straw, leaves, manure, etc, spread or left on the ground around plants to prevent excessive evaporation or erosion, enrich the soil, etc.

Mulch Level. The amount of dry plant material left on the ground from the previous year's growth. Measured in pounds per acre.

Multiple Use. The management of the public land and its various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use

of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific, and historical values, and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.

National Environmental Policy Act (NEPA) of 1969. Public Law 91-190. Established environmental policy for the nation. Among other items, NEPA requires Federal agencies to consider environmental values in decision-making processes.

National Natural Landmark. An area of national significance located within the boundaries of the United States or on the Outer Continental Shelf designated by the Secretary of the Interior that contains an outstanding representative example(s) of the nation's natural heritage, including terrestrial communities, aquatic communities, landforms, geological features, habitats of native plant and animal species, or fossil evidence life on earth.

National Register of Historic Places (NRHP). A register of districts, sites, buildings, structures, and objects, significant in American history, architecture, archaeology, and culture, established by the Historic Preservation Act of 1966 and maintained by the Secretary of the Interior.

National Register Eligible. Status conferred upon a cultural resource when it is deemed qualified for the NRHP, following formal documentation and consultation.

National Register Potential. Status of a cultural resource which is deemed qualified for the NRHP, prior to formal documentation and consultation; managed as if it were actually listed.

Neotropical Migrant. Primarily referring to bird species which breed in the United States during the summer months and migrate to Central and South America during the winter months (winter in the Northern Hemisphere).

Nonhazardous Waste. Any garbage, refuse, sludge from a waste treatment plant, water supply treatment, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, agricultural operations, and community activities, but does not include, solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under Sec. 402 of the Federal Water Pollution Act, as amended (86 Statute. 880) or source (Special Nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 as amended).

No Surface Occupancy (NSO). Requirement placed as a term of a lease or permit which does not allow the lessee/permittee the physical occupancy, placement or use of the identified area of the lease or permit.

Notice to Proceed. A written authorization by the authorized officer which allows the holder to initiate surface disturbing activities. A notice to proceed applies only if specifically stipulated in the right-of-way grant. A notice to proceed is usually used to allow a grant to be issued, while preventing the holder from starting surface disturbing activities before a plan of development is approved. The authorized officer can issue separate notices to proceed if the project involves distinct work phases and or locations. Each notice to proceed will specify the nature of work, location, and dates to be authorized.

Noxious Weed. Any species of plant which is, or is liable to be, detrimental or destructive and difficult to control or eradicate which the California Director of Food and Agriculture, by regulation, designates to be a noxious weed. Noxious weeds are listed under California Food and Agriculture Code Title 3, Sec.4500.

Off-Highway Vehicle (OHV). This term includes a wide variety of vehicles used for access and recreation including motorcycles, three and four wheeled all terrain vehicles (ATVs), 4-wheel drive trucks, jeeps and dune buggies.

Off-Highway Vehicle Designation. Executive Order 11644 requires that all public land be designated for

appropriate levels of OHV use in one of three possible categories: Open, Limited, or Closed.

Open. Designated areas where OHVs may be operated subject to the operating regulations and vehicle standards set forth in 43 CFR 8340.

Limited. Designated areas where OHV use is subject to restrictions deemed appropriate, such as limited to designated or existing routes. For the purpose of this EIS, designated routes are defined as vehicle routes shown on current 1:100,000 land use maps.

Closed. Designated areas where OHV use is permanently prohibited.

Oil Window. The range of temperatures between the onset of oil generation and its destruction. Oil is generated from organic matter in sediments which is heated by metamorphism. Higher temperatures will destroy oil. According to Frizzell and Claypool (1983, p.3) the temperatures of maximum oil formation for Neogene marine rocks is 400 to 435 degrees Celsius.

Oligocene. An epoch of the early Tertiary period, after the Eocene and before the Miocene.

Ophiolite. Basic igneous rocks associated with geosynclinal sediments, generally altered to rocks rich in serpentine, chlorite, epidote, and albite.

Paleontology. The science of the forms of life existing in former geologic periods, as represented by fossil animals and plants.

Patent. As it relates to public land laws, a patent is the instrument (or deed) by which the Government conveys title to the public lands.

Perennial. A plant having a life cycle of three or more years.

Perennial Range. Rangeland that contains primarily perennial forage plants.

Perennial Stream. A stream which flows throughout the year.

Permit. A short-term revocable authorization to use public lands for specified purposes.

Petroglyph. A figure, design, or indentation carved, abraded, or pecked onto a rock.

Pictograph. A figure or design painted onto a rock.

Placer Claim. A locatable mineral claim encompassing public land which contains valuable minerals that do not occur as a vein or lode. May include building stone of uncommon variety.

Plan of Development. Comprises a complete description and design for the proposed project. It shall include but not be limited to proposed plans, specifications, construction methods, schedules, restoration practices, and other information pertinent to the proposal; the plan becomes a part of the right-of-way grant or permit. The plan can include sections for construction, maintenance, and termination. The content of the plan will vary with the complexity of the proposal.

Plant Community. A regional element of the vegetation characterized by the presence of certain dominant species. A vegetation type may consist of one to several communities.

Pleistocene. An epoch of the Quaternary period, after the Pliocene of the Tertiary and before the Holocene. It began 2 to 3 million years ago and lasted until the start of the Holocene some 10,000 years ago. Also known as the Ice Age.

Pooling Agreements. A land exchange arrangement where multiple parcels of Federal and/or non-Federal lands

are consolidated into a package for the purpose of completing one or more exchange transactions over a period of time.

Poor Forage Year. A growing season (usually November to April) that results in low moisture levels, abnormally low total vegetative production because of or unseasonal temperatures, or both.

Post-Lease. All activities occurring on the land embraced by the lease conducted in accordance with the terms of the lease.

Potential Habitat. Natural lands within the range of a species that may support the species. Due to the lack of information about the presence or absence of a species in many parts of its range, it is assumed that the areas are potential habitat until determined otherwise.

Precinct. Kangaroo rat burrow system that defines a territory.

Precious Metals. Metals with an intrinsic value such as gold, silver, and platinum.

Preference. Grazing privileges established following the passage of the Taylor Grazing Act, based on the use of the Federal range during the priority period. The active preference and suspended preference together make up the total grazing preference.

Preference Right. A right obtained by a permittee to lease land under the approved permit when to the satisfaction of the authorized officer, a showing of a valuable mineral deposit for which the permit was issued, has been discovered.

Pre-Lease. All actions, except exploration, that occur before and including leasing. These include feasibility studies and all actions leading up to a leasing decision, and include the decision on leasing.

Prescribed Burning. The application of fire to wildland fuels under such conditions of weather, fuels, and topography that specific objectives are accomplished safely.

Pressure Sink. A reduction in hydraulic pressure due to physical disruption of an aquifer.

Primary Water Source. A natural undeveloped water source.

Primitive Recreation. Non-motorized and non-developed types of outdoor recreational activities.

Prospectively Valuable. Lands for which geologic conditions are favorable for the accumulation of a mineral resource and would warrant sufficient interest to explore or prospect for an economic deposit.

Proto-Historic. Refers to period wherein Native American cultural activities took place which were influenced by contact with historic non-native culture(s).

Public Access. A corridor or route through which all members of the public may legally travel when engaging in casual use of public lands, without specific authorization from the BLM or other landowner. Where public access is limited (to foot, foot and horse, or non-mechanized), any other means of travel requires approval of the authorized officer.

Public Lands. Any lands and interests in lands owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership, except (1) lands located on the Outer Continental Shelf; and (2) lands held for the benefit of Indians, Aleuts and Eskimos.

Range Improvement. Any activity or program on or relating to rangelands which is designed to improve production of forage, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, and provide habitat for livestock, wild free-roaming horses and burros, and wildlife. The term includes but is not limited to structures, treatment projects, and use of mechanical means to accomplish the

desired result.

Raptor. Birds of prey with sharp talons and strongly curved beaks; e.g., hawks, owls, eagles, and falcons.

Reach. See Riparian Reach

Recovery. Improvement of the status of a species to the point at which listing is no longer appropriate under the criteria of the Endangered Species Act.

Recreation and Public Purposes (R&PP) Act. The Recreation and Public Purposes Act (Act of June 14, 1926, as amended, 43 U.S.C. 869, et seq.) provides for lease or conveyance of certain public lands to State and local governmental units and agencies, and nonprofit corporations and associations for use for recreation and public purposes.

Recruitment. Referring to saltbush: when many seedlings and juvenile plants are present.

Research Natural Area (RNA). An area that is established and maintained for the primary purpose of research and education because the land has one or more of the following characteristics: a typical representation of a common plant or animal association; an unusual plant or animal association; a threatened or endangered plant or animal species; a typical representation of common geologic, soil, or water features; or outstanding or unusual geologic, soil, or water features.

Reservation. A withdrawal of a permanent nature, dedicated to a specific public purpose.

Resident Game. Populations of game species (e.g. deer) that do not migrate.

Residual Dry Matter (RDM). The amount of dry plant material left on the ground from the previous year's growth.

Rest. Removal of livestock on a range area to allow the area to replenish food reserves. Used in this document to refer to year-long relief from livestock grazing.

Right-of-Way Avoidance Area. An area where future rights-of-way may be granted only when no feasible alternative route or designated right-of-way corridor is available.

Right-of-Way Exclusion Area. An area where future rights-of-way may be granted only when mandated by law.

Right-of-Way Grant. An instrument authorizing the use of a right-of-way over, upon, under or through public lands for construction, operation, maintenance and termination of a project.

Riparian. Situated on or pertaining to the bank of a river, stream, or other body of water. Normally used to refer to the plants of all types that grow rooted in the water table of streams, ponds and springs.

Riparian Reach. Full extent of a natural drainage system from its source to its confluence with another system.

Road. A vehicle route that has been improved and maintained by mechanical means to ensure relatively regular and continuous use.

Rock Art/Ceremonial Sites. Petroglyphs or pictographs, some of which were probably expressions of Native American ceremonial activities.

Rockshelter. Naturally-formed recess in a rock formation which provided shelter to prehistoric occupants.

Salable Minerals. Minerals that may be sold under the Material Sale Act of 1947, as amended. Included are common varieties of sand, stone, gravel, and clay.

Salinian Block. That portion of the Coast Ranges lying west of the San Andreas Fault, east of the Nacimiento Fault, and north of the Big Pine Fault. It includes the Salinas and Cuyama Basins.

Scarification. Disturbance of the upper soil layer by mechanical means in preparing a site for seeding or planting.

School Land Indemnity Selection. The selection made by a State to take the place of school lands promised when statehood was granted, but never received.

Season of Use. The part of the year in which livestock are authorized to graze in a given area.

Secondary Water Source. A developed water source e.g., a reservoir or a trough.

Sedimentary Bedrock. Rock made up of particles deposited from suspension in water, such as shale and sandstone.

Segregation. Refers to the status or land and what laws (mineral or land disposal) may be excluded from applying to the land.

Sensitive Resources. Those plants, animals, cultural, and natural resources that require special management consideration under current BLM policy to comply with Federal and state mandates.

Sensitive Species. (see Special Status Species).

Short-term Impacts. In this document, short-term refers to the 10 to 12-year life of the approved Resource Management Plan. Short-term impacts would occur within that time period.

Significant. A high degree of importance as indicated by either quantitative measurements or qualitative judgements. Significance may be determined by evaluating characteristics pertaining to location, extent, consequences, and duration.

Siliceous Shale. A very slightly silicified claystone, generally of marine origin, in which silica from shelled micro-organisms, have contributed extra strength and hardness to the rock.

Skarn. Lime-bearing silicates derived from nearly pure limestone and dolomite with the introduction of large amounts of silicon, aluminum, iron, and magnesium.

Small Tract Act. Public lands (five acres or less) which have been found to be chiefly valuable for sale as a home, cabin, camp, or business site under this act dated June 1, 1938.

Sociocultural Values. The quality of being useful or important or perceived as such by a specified social and/or cultural group which contributes to the heritage and/or existence of that group. Can be ideals, customs, institutions, artifacts, sites, location, etc., which are of importance or have intrinsic worth to a social and/or cultural group or groups.

Soil Compaction. The process of increasing the bulk density of the soil through the compression of large voids. Reduction of the air spaces in the soil will result in overland flow of water and surface erosion occurring with less intense storms. Soil compaction can also significantly reduce plant vigor by reducing the gas exchange (carbon dioxide and oxygen) in the root zone, by reducing the transport rate of nutrients through the soil, and by creating a physical impedance to root penetration.

Special Recreation Management Area (SRMA). Subunits of resource areas: (1) that require special management attention due to a concentration of recreation resource uses and/or values; (2) containing congressionally or administratively designated areas; (3) having similar or interrelated recreation values which require a substantial management commitment; and/or (4) where recreation is a principle management objective identified through the land use planning process.

Special Recreation Use Permit (SRUP). A standard permit required for: 1) commercial recreation use of public lands; 2) competitive use; 3) off-highway vehicle events involving 50 vehicles or more; and 4) special area use where the authorized officer determines that existing laws require their issuance. Except in special use areas a SRUP is not required for individuals or the individual's immediate family. The term of the permit can range from one day to five years. Fees and insurance may be required from the permittee.

Special Status Species. Includes the following:

Proposed Species. Species that have been officially proposed for listing as threatened or endangered by the Secretary of the Interior.

Threatened or Endangered. Species officially listed as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act.

Candidate Species. Species designated as Federal candidates for listing as threatened or endangered by the U.S. Fish and Wildlife Service. (see Candidate Species)

State Listed Species. Species proposed for listing or listed by California in a category (rare, threatened, or endangered) implying potential endangerment or extinction. Listing is either by legislation or regulation.

BLM Sensitive Species. Species designated by the California State Director of BLM, usually in cooperation with the California Natural Diversity Data Base, as sensitive. They are those species that are: (1) under status review by the U.S. Fish and Wildlife Service; or (2) whose numbers are declining so rapidly that Federal listing may become necessary; or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats.

California Native Plant Society Sensitive Species. Plant species identified in the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California.

Species Composition. A measure of the percentage of a given area that each plant occupies in relation to others on a given site.

Sphingid. A hawkmoth (also known as a sphinx moth).

Split Estate. A given area where the surface and mineral estates are in different ownerships. In this document split-estate refers to areas where the surface is owned by private or state or local government, and the minerals are Federally owned.

Stipulations. The provisions of a right-of-way grant or permit which include but are not limited to statements describing the boundary of the grant or permit, the limits which govern the holder's exercise of the rights granted and generally how the project will be constructed, operated, maintained and terminated. Used interchangeably with "Terms and Conditions".

Stocking Rate. The number of animals on a specific area at a specific time, usually expressed in acres/AUM.

Stockraising Homestead Act. Western lands that were not suitable for cultivation but were suitable for stock grazing could be patented under this act dated December 29, 1916.

Stockton Arch. A northeast trending ridge of rock beneath sediments of the San Joaquin Valley associated with the Stockton Fault.

Stratigraphic Correlation. The process by which stratigraphic units in two or more separated areas are demonstrated or determined to be laterally similar in character or mutually correspondent in stratigraphic position, as based on geologic age, fossil content, or any other property.

Stratigraphy. That branch of geology which treats the formation, composition, sequence, and correlation of the stratified rocks as part of the earth's crust.

Subsurface. The mineral estate of a parcel of land.

Suction Dredging. A placer gold mining and recovery method that involves "vacuuming" gold bearing gravel from a river or creek bed and running the gravel across a riffle box to recover the gold.

Suitability. As used in the Wilderness Act and in the Federal Land Policy and Management Act refers to a recommendation by the Secretary of Interior or the Secretary of Agriculture that certain Federal lands satisfy the definition of wilderness in the Wilderness Act and have been found appropriate for designation as wilderness on the basis of an analysis of the existing and potential uses of the land.

Sundry Notice. Standard form to notify or approve well operations subsequent to the Application for Permit to Drill, in accordance with BLM regulations.

Sustained Yield. The achievement and maintenance in perpetuity of a high level annual or regular periodic output of the various renewable resources of the public land consistent with multiple use. This term is most commonly associated with forest management and the provisions of an undiminished or "even flow" average annual production of wood fiber over decades. It is also applicable to the management of all renewable resources including forage, wildlife, water, recreation or any value that can be managed for renewal and sustained productivity. It is dependent on the application of multiple use management in a way that assumes the maintenance of the land's productivity.

Temporary Camp. Area utilized seasonally for short-term activity, with evidence of occupation in addition to primary task(s). Usually smaller than "camp" sites, with less midden depth and extent, fewer tasks evident, with a less diverse natural resource base available.

Temporary Use Permit. A revocable, nonpossessory, nonexclusive temporary authorization to use the public or Federal lands in connection with construction, operation, maintenance, or termination of a right-of-way project.

Tertiary. Relating to, or being the first period of the Cenozoic era (after the Cretaceous of the Mesozoic era and before the Quaternary) or the corresponding system of rocks marked by the formation of high mountains (as the Alps, Caucasus, and Himalayas) and the dominance of mammals on land. Thought to have covered the span of time between 65 and 3 to 2 million years ago. It is divided into 5 epochs: Paleocene, Eocene, Oligocene, Miocene, and Pliocene.

Threatened and Endangered Species Conservation Area - An area identified by the U.S. Fish and Wildlife Service or the California Department of Fish and Game as important for the survival and recovery of Federally or State listed species. These areas may be important as reserves or as corridors to connect these reserves.

Threatened Species. Any species formally recognized by the U.S. Fish and Wildlife Service as likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Traditional Lifeway Values. See Cultural Resources

Transportation and Utility Corridor. A parcel of land, without fixed limits or boundaries, that is being used as the location for one or more transportation or utility rights-of-way.

Trespass. Any use, occupancy or development of the public lands or their resources without authorization to do so from the United States where authorization is required, or which exceeds such authorization or which causes unnecessary or undue degradation of the land or resources. Used interchangeably with "Unauthorized Use".

Type Area. The geographic area surrounding the type locality of a stratigraphic unit or boundary.

Type Locality. Place where a geologic feature (such as an ore occurrence, a particular kind of igneous rock,

or the type specimen of a fossil species or subspecies) was first recognized and described.

Unitization. An agreement or plan for the development and operation which provides for the recovery of oil and/or gas from the lands made subject thereto as a single consolidated entity without regard to separate ownerships and for the allocation of costs and benefits on a basis as defined in the agreement or plan. Unitized lands are all considered as one lease with a single operation.

Unnecessary or Undue Degradation. Impacts greater than those that would normally be expected from an activity being accomplished in compliance with current standards and regulations and based on sound practices, including use of the best reasonable available technology.

Unsuitable Range. An area not suited for livestock grazing because of barrenness, lack of forage or water, unstable soils, or physical barriers such as topography, rock, or dense timber. The areas may still have value for wildlife.

Urban Interface. Transition between urban development and a rural area.

Urban Intermix. Scattered urban and residential development within a rural area.

Use Authorization. Approval of a proposed use for land or resources on the prescribed form or document designated for such use; a document showing permission to use land or the resources thereon; a formalized grant pursuant to a request to use land or resources.

Utilization. The proportion of current year's growth that is consumed or destroyed by grazing or browsing animals.

Vegetation Manipulation. Mechanical, chemical, or prescribed fire treatments initiated by humans to alter or replace the present plant community of a site to a different plant community.

Vegetation Type. A grouping of similar vegetation based on structure, a product of the complex of climatic factors effective in a region.

Viewshed. The landscape that can be directly seen under favorable atmospheric conditions from a viewpoint or along a transportation corridor.

Visitor Hours. Unit of measure for recreation use; one hour spent on public land by one recreationist.

Visual Resource Management (VRM). The planning, design and implementation of management objectives to provide acceptable levels of visual impacts for all BLM resource management activities. VRM classes I through V each describe a different degree of modification allowed in the basic elements of the landscape and still retain its character.

VRM Class I. This class provides primarily for natural ecological changes and precludes any management activities that create visual contrasts within the landscape. These contrasts must not attract attention. This class is applied to wilderness areas, wild and scenic rivers and other similar situations.

VRM Class II. This classification retains the existing characteristic landscape. The level of change in any of the basic landscape elements due to management activities should be low and not evident.

VRM Class III. This classification partially retains the existing characteristic landscape. The level of change in any of the basic landscape elements due to management activities may be moderate and evident.

VRM Class IV. This classification provides for major modifications of the characteristic landscape. The level of change in the basic landscape elements due to management activities can be high. Such activities may dominate the landscape and be the major focus of viewer attention.

VRM Class V. This classification applies to areas where the characteristic landscape has been so disturbed that rehabilitation is needed to improve scenic quality. Generally considered an interim short-term classification until rehabilitation or enhancement is completed.

VRM Class II R, III R, and IV R. These classifications denote lands that contain visual intrusions to the extent that rehabilitation is necessary to improve the scenic quality to the level were applicable class objectives (II, III, or IV) could be applied. Upon rehabilitation, the lands would be managed as per the noted VRM Class (II, III, IV).

Waiver. Permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

Watershed. The area drained by a river or stream system.

Way. A vehicle route maintained solely by the passage of vehicles.

Wetland. Permanently wet or intermittently flooded area where the water table is at, near, or above the soil surface for extended intervals, where hydric wet soil conditions are normally exhibited, and the water depths are less than two meters. Vegetation is generally comprised of water-loving forms.

Wild and Scenic River. River with outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values and designated by Congress under the Wild and Scenic Rivers Act for preservation of their free-flowing condition.

Wildcat Drilling. Drilling for oil in an area of unknown potential i.e., outside existing fields.

Wildcat Well. An exploratory well drilled for oil or gas on a geological feature not yet proven to be productive, or in an unproven territory, or to a zone that has never produced or is not known to be productive in the general area. Cf: outpost well; deeper-pool test; shallower-pool test. Syn: wildcat.

Wilderness Area. (1) An area formally designated by Congress as part of the National Wilderness Preservation System. (2) An area formally designated as part of the State of California's Wilderness Preservation System.

Wilderness Inventory. An evaluation of the public land in the form of a written description and map showing the land that meets the wilderness criteria as established under Section 603(a) of FLPMA and Section 2(c) of the Wilderness Act, which will be referred to as wilderness study areas (WSAs). See Wilderness Inventory Handbook, dated September 27, 1978.

Wilderness Study Area (WSA). Road-less areas of 5,000 acres or more and road-less islands of public lands identified as having wilderness characteristics described in the Wilderness Act of 1964.

Wilderness Suitability. A management recommendation based on the application of wilderness suitability criteria, that the best use of the resources comprising a Wilderness Study Area would be designation of a WSA as a component of the National Wilderness Preservation System.

Withdrawal. Withholding an area of Federal land from settlement, sale, location, or entry under some or all of the general land laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program; or transferring jurisdiction over an area of Federal land.

Zeolite. A generic term for a large group of white or colorless (sometimes red or yellow) hydrous aluminosilicates.

References

Abel, D. L. 1989. Preface. pp. i-iii in D.L. Abel, technical coordinator. Proceedings of the California Riparian Systems Conference. Pacific Southwest Forest and Range Experiment Station. General Technical Report PSW-110.

Albers, J. P. and L. A. Fraticelli. 1984. Preliminary mineral resource assessment map of California. U.S. Geological Survey Mineral Investigation Map MR-88 scale 1:1,000,000.

Albers, J. P. 1981. A lithologic-tectonic framework for the metallogenic provinces of California. Economic Geology Vol. 76, No. 4, pp. 765-790.

American Fisheries Society. 1980. Management and Protection of Western Riparian Stream Ecosystems. American Fisheries Society, Western Division. 24 pp.

American Ornithologists' Union. 1983. Check-list of North American Birds, 6th Edition. Allen Press, Lawrence, Kansas.

Anderson, D. C., K. T. Harper, and R. C. Holmgren. 1982. Factors Influencing Development of Cryptogamic Soil Crusts in Utah Deserts. Journal of Range Management 35(2):180-185.

Bartel, J. 1991. Personal communication. Meeting at Caliente Resource Area office October 1, 1991.

Bartolome, J. M., M. Stroud, and H. Heady. 1980. Influence of Natural Mulch on Forage Production on Differing California Annual Range Sites. Journal of Range Management 33(1):4-8.

Bentley, J. R. and M. W. Talbot. 1951. Use of Annual Plants in California Foothills. U. S. Department of Agriculture Circular 870. 52 pp.

Berry, W. H., J. H. Scrivner, T. P. O'Farrell, C. E. Harris, T. T. Kato, and P. M. McCue. 1987. Sources and Rates of Mortality of the San Joaquin Kit Fox, Naval Petroleum Reserve #1, Kern County, California, 1980-1986. Report for the U.S. Department of Energy under Contract Number DE-AC08-83NV10282. 33 pp.

Beyer, L., and J. Bartow. 1987. Summary of Geology and Petroleum Plays Used to Assess Undiscovered Recoverable Petroleum Resources of San Joaquin Basin Province, California: USGS Open File Report OFR 88-450Z. 80 pp.

Beyer, L. 1988a. Summary of Geology and Petroleum Plays Used to Assess Undiscovered Recoverable Petroleum Resources of Sacramento Basin Province, California: USGS Open File Report OFR 88-450-O. 64 pp.

Beyer, L. 1988b. Summary of Geology and Petroleum Plays Used to Assess Undiscovered Recoverable Petroleum Resources of Los Angeles Basin Province, California: USGS Open File Report OFR 88-450L. 62 pp.

Brotherson, J. D., S. R. Rushforth, and J. R. Johansen. 1983. Effects of Long-term Grazing on Cryptogam Crust Cover in Navajo National Monument, Ariz. Journal of Range Management 36(5):579-581.

Buer, K., D. Forwalter, M. Kissel, and B. Stohler. 1989. The Middle Sacramento River: Human Impacts on Physical and Ecological Processes along a Meandering River. pages 22-32 in Proceedings of the California Riparian Systems Conference. Pacific Southwest Forest and Range Experiment Station. General Technical Report PSW-110.

Buwalda, John P. 1916. New Mammalian Faunas from Miocene Sediments Near Tehachapi Pass in the Southern Sierra Nevada, University of California Publications, Bulletin of the Department of Geology, Vol. 10, No. 6, pp. 75-85.

California Coastal Commission. 1987. California Coastal Resource Guide. University of California Press, Berkeley, California.

California Department of Fish and Game. 1989. 1988 Annual Report on the Status of California's State Listed Threatened and Endangered Plants and Animals. California Department of Fish and Game, Sacramento, California. 129 pp.

California Department of Fish and Game. 1980. At the Crossroads - A Report on California's Endangered and Threatened Wildlife. California Department of Fish and Game. 147 pp.

California Department of Food and Agriculture. 1991. Environmental Assessment of Curly Top Virus Control in California. California Department of Food and Agriculture, Sacramento, California. 83 pp. + appendices.

California Department of Parks and Recreation. 1987. "Public Opinions and Attitudes on Outdoor Recreation in California", September 1987.

California Department of Parks and Recreation. 1980. "The California Recreation Demand Model", statistics investigated as part of the Need Analysis during the 1980 California Recreation Survey.

Chartkoff, Joseph L. and Kerry Kona Chartkoff. 1984. The Archaeology of California, Stanford University Press, Stanford, California.

Clark, W. B. 1976. Gold Districts of California: California Division of Mines and Geology Bulletin 193.

Clary, W. P. and B. F. Webster 1989. Managing Grazing of Riparian Areas in the Intermountain Region. General Technical Report INT-263. USDA Forest Service, Intermountain Research Station, Ogden, Utah.

Clary, W. P., and B. F. Webster. 1990. Riparian Grazing Guidelines for the Intermountain Region. Rangelands 12(4):209-212.

Clawson, W. J., N. K. McDougald, and D. A. Duncan. 1982. Guidelines for Residue Management on Annual Range. University of California, Cooperative Extension, Division of Agricultural Sciences. Leaflet 21327. 4 pp.

Consoli, D. and R. Reser. 1989. The Monache Deer Herd Plan - Revised. California Department of Fish and Game, Sacramento, California. 37 pp.

Dibblee, Thomas W. Jr. 1967. Areal Geology of the Western Mojave Desert California, Geological Survey Professional Paper 522. pp. 91-95.

Dibblee, Thomas W. Jr., Gladys P. Louke. 1970. Geologic Map of the Tehachapi Quadrangle Kern County California, map I-607, U.S. Geological Survey, Washington D.C. pp. 1-8.

Dillinger, B. 1989. Last Stand of the Cuckoo. Outdoor California 50(2):20-23.

Eckel, E. B., R. G. Yates and A. E. Granger. 1941. Quicksilver deposits in San Luis Obispo County and southwestern Monterey County California: U. S. Geological Survey Bulletin 922-R.

EG&G. 1986. Biological Assessment of the Effects of Petroleum Production at Maximum Efficient Rate, Naval Petroleum Reserve #1 (Elk Hills), Kern County, California, on the Endangered Blunt-nosed Leopard Lizard, Gambelia silus. Report for the U.S. Department of Energy under Contract Number DE-AC08-83NV10282. 63 pp.

Ewert, Alan. Outdoor Recreation and the Wildland-Urban Interface: Values and Uses in Change, USDA Forest Service, Pacific Southwest Forest and Range Experiment Station, Riverside, CA. March 1990.

Freas, K. E. and D. D. Murphy. 1991. The Endangered Bakersfield Saltbush. Fremontia 19(2):15-18.

George, M. R., W. J. Clawson, J. W. Menke, and J. Bartolome. 1984. Annual Grassland Forage Productivity. University of California, Cooperative Extension, Division of Agricultural Sciences. Leaflet 21378. 4 pp.

Germano, D. J. 1991. Personal communication.

Glassow, Michael A. with contributions by Sara Gardiner and Dana McGowan. 1981. Archaeological Investigations at Point Sal, Santa Barbara, County, California. Unpublished manuscript; Department of Anthropology, University of California, Santa Barbara. On file at USDI, Bureau of Land Management, Caliente Resource Area, Bakersfield, California.

Goodwin, J. G. 1958. Mines and Mineral Resources of Tulare County, California: California Division of Mines Report Vol. 54, No. 3, pp. 317-492.

Gower, H. D. 1966. Phosphate in Mineral resources of California: California Division of Mines and Geology Bulletin 191. pp. 328-332.

Green, L. R. 1979. Prescribed Burning in California Oak Management. Proceedings of the Symposium on the Ecology, Management, and Utilization of California Oaks (June 26-28, 1979, Claremont, California). Pacific Southwest Forest and Range Experiment Station. pp. 136-142.

Hager, R. 1989. Industry Executives Expect Stability for Oil, Gas Supply/Demand in 1990s: Oil and Gas Journal, Vol. 87, No. 52, December 25, 1989, p. 21.

Harris, J. H., and D. M. Stearns. 1990. Population Density and Census Methods, Habitat Relationships and Home Range of the San Joaquin Antelope Squirrel, 1988-1989. Report for the California Department of Fish and Game, Sacramento, California. 56 pp.

Hartesveldt, R.J., H.T. Harvey, H.S. Shellhammer, and R.E. Stecker. 1975. The Giant Sequoia of the Sierra Nevada. U.S. Department of the Interior, National Park Service. 150 pp. + appendices.

Hawbecker, A. C. 1947. Food and Moisture Requirements of the Nelson Antelope Ground Squirrel. Journal of Mammalogy 28:115-125.

Hawbecker, A. C. 1953. Environment of the Nelson Antelope Ground Squirrel. Journal of Mammalogy 34:324-334.

Higgins, C. T. 1980. Geothermal resources of California: California Division of Mines and Geology California Geologic Data Map 4.

Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game, Nongame-Heritage Program. 155 pp.

Hoover, R. F. 1970. The Vascular Plants of San Luis Obispo County, California. University of California Press. 350 pp.

Hopkins, H.H. 1954. Effects of Mulch Upon Certain Factors of Grassland Environment. Journal of Range Management. 7:255-258.

Jennings, C. W. 1953. Mines and mineral resources of Kings County, California: California Division of Mines Report, Vol. 49, No. 3. pp. 273-297.

Kay, B. L., C. R. Brown, and W. L. Graves. 1977. Mojave Revegetation Notes, No. 16. U.C. Davis Agronomy and Range Science. 6 pp.

Knopf, F. 1991. Personal communication.

Kroeber, A. L. 1925. Handbook of the Indians of California. 1976 Dover edition of Bulletin 78 of the Bureau of American Ethnology of the Smithsonian Institution, Washington, D.C.

Leachman, B.; and B. Osmundson. 1990. Status of the Mountain Plover. U.S. Fish and Wildlife Service, Golden, Colorado. 83 pp.

MacKinnon, T. 1989. Oil in the California Monterey Formation: 28th International Geological Congress, Field Trip Guidebook T311.

Mast and others. 1989. Estimates of Undiscovered Conventional Oil and Gas Resources in the U.S.- A Part of the Nations Energy Endowment: USGS/MMS joint assessment paper.

Mayer, K. E., and W. F. Laudenslayer, Jr. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, California. 166 pp.

Miller, P. R., G. J. Longbotham, R. E. Van Doren, and M. A. Thomas. 1979. Effect of Chronic Oxidant Air Pollution Exposure on California Black Oak. Proceedings of the Symposium on the Ecology, Management, and Utilization of California Oaks (June 26-28, 1979, Claremont, California). Pacific Southwest Forest and Range Experiment Station. pp. 220-229.

National Fish and Wildlife Foundation. 1990. Neotropical Migratory Bird Conservation Program. National Fish and Wildlife Foundation, Washington, D.C. 9 pp.

Nichols, T. A. 1988. Report on the Seneca Resource Corporation 1988 - Proposal for Drilling, Powell and Burns Lease. U.S. Fish and Wildlife Service, Ventura Endangered Species Recovery Office. Unpublished Report. 13 pp.

O'Farrell, T. P., T. Kato, P. McCue, and M. Sauls. 1980. Inventory of San Joaquin Kit Fox on BLM Lands in Southern and Southwestern San Joaquin Valley. Report for Bureau of Land Management under Interagency Agreement CA-910-IA9-4. 74 pp. + appendices.

O'Farrell, T. P. and P. McCue. 1981. Inventory of San Joaquin Kit Fox on BLM Lands in the Western San Joaquin Valley. Report for Bureau of Land Management under Interagency Agreement CA-910-IA0-7. 36 pp. + appendices.

O'Farrell, T. P. 1983. San Joaquin Kit Fox Recovery Plan. E.G.&G. Energy Measurements Group, Goleta, California. Prepared for U.S. Fish and Wildlife Service, Portland, Oregon. 84 pp.

Paige, K. N. and T. G. Whitham. 1987. Overcompensation in Response to Mammalian Herbivory: The Advantage of Being Eaten. American Naturalist 129(3):407-416.

Passof, P. C., W. J. Clawson, and E. L. Fitzhugh. 1985. Preliminary Guidelines for Managing California's Hardwood Rangelands. University of California, Cooperative Extension, Division of Agriculture and Natural Resources. 92 pp.

Platts, W. S. 1986. Riparian-stream Management. pp. 70-74. in National Range Conference Proceedings. U. S. Department of Agriculture, Washington D.C.

Prendusi, T. 1991. Personal communication. Telephone conversation October 8, 1991.

San Joaquin Valley Unified Air Pollution Control District. 1991. 1991 Air Quality Attainment Plan, Preliminary Draft.

Savage, Donald E., Theodore Downs. 1954. Geology of Southern California, Bulletin 170, Chapter III, Historical Geology, Division of Mines, San Francisco. pp. 43-58.

Schlorff, R. 1979. Five Year Status Report - San Joaquin Antelope Squirrel. California Department

of Fish and Game, Sacramento, California. 7 pp.

Singer, M.J., J. Blackard, and G.L. Huntington. 1980. Plant Cover Helps Rangeland Soil. California Agriculture. October 1980, p. 8-10.

Smith, Jr., J. P. and K. Berg (eds.). 1988. Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society. 115 pp. + appendices.

Smith, M. B. and others. 1971. Reported occurrences of selected minerals in the central third of California. U.S. Geological Survey Map MR-48.

Smith, M. B. and others. 1974. Reported occurrences of selected minerals in the southern third of California. U.S. Geological Survey Map MR-49.

Spencer, Lee A. 1990. Personal communication. Letter, on file at Caliente Resource Area.

Steinhart, P. 1990. California's Wild Heritage: Threatened and Endangered Animals in the Golden State. California Department of Fish and Game, Sacramento, California. 108 pp.

Stoddart, L.A., and A.D. Smith. 1955. Range Management, Second Edition. McGraw-Hill Book Company, Inc. New York, Toronto, London. 433 pp.

Taylor, D. M. 1989. Status Survey for San Joaquin Woolly-threads (*Lembertia congdonii*). Prepared for U.S. Fish and Wildlife Service, Office of Endangered Species. 26 pp. + appendices.

Taylor, D. M. and W. B. Davilla. 1986. Status Survey of Three Plants Endemic to the San Joaquin Valley and Adjacent Areas, California. Prepared for U.S. Fish and Wildlife Service, Office of Endangered Species. 136 pp. + appendices.

Thomas, J. W., C. Maser, and J. E. Rodiek. 1979. Riparian Zones. pages 40-47 in J. W. Thomas ed. Wildlife Habitats in Managed Forests the Blue Mountains of Oregon and Washington. U.S. Department of Agriculture, Forest Service. Agricultural Handbook Number 553.

Thomas, J. W., C. Maser, and J. E. Rodiek. 1979a. Wildlife Habitats in Managed Rangelands - the Great Basin of Southeast Oregon: Riparian Zones. U.S. Department of Agriculture, Forest Service. General Technical Report PNW-80. 18 pp.

Tollestrup, K. 1989. The Ecology, Social Structure, and Foraging Behavior of Two Closely Related Species of Leopard Lizards, *Gambelia silus* and *Gambelia wislizenii*. Ph.D. Dissertation, University of California, Berkeley. 146 pp.

Troxel B. W. and Morton P. K. 1962. Mines and Mineral Resources of Kern County, California: California Division of Mines and Geology County Report 1.

Twisselmann, E. C. 1967. A Flora of Kern County, California. The University of San Francisco. 395 pp.

USDI. 1981. Final Environmental Assessment - Timber Management Program for SYU-15 California. Bureau of Land Management, Sacramento, California. 257 pp.

USDI. 1984. South Sierra Foothills Planning Area, Public Summary/Rangeland Program Summary,

September 1984. Bureau of Land Management, Caliente Resource Area. 57 pp.

USDI. 1988. BLM Manual 8100 - Cultural Resource Management, Appendix 9, Release 8-38, 12/12/88. Bureau of Land Management, Washington, D.C.

USDI. 1990. Monitoring of Small Mammal Burrow Collapse in the Carrizo Plain Natural Area. Unpublished Report, Bureau of Land Management, Caliente Resource Area.

USDI. 1991. Analysis of the Management Situation - Valley, Coast, and South Sierra Management Areas. Unpublished Document, Bureau of Land Management, Caliente Resource Area.

USFWS. 1984. Revised California Condor Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. 110 pp. + appendices.

USFWS. 1984a. Kern Primrose Sphinx Moth Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. 40 pp.

USFWS. 1985. Revised Blunt-nosed Leopard Lizard Recovery Plan. U.S. Fish and Wildlife Service, Sacramento, California. 85 pp.

USFWS. 1985a. Endangered Species Technical Bulletin. Vol. X, No. 9. September 1985.

USFWS. 1987. Endangered Species Technical Bulletin. Vol. XII, No. 8.

USFWS. 1988. Draft Revised Kit Fox Recovery Plan - First Draft. Unpublished First Draft. U. S. Fish and Wildlife Service, Sacramento, California. 101 pp.

USFWS. 1989. Formal Section 7 Consultation concerning a Proposed Livestock Grazing Program for the Carrizo Plain, San Luis Obispo County, California. U.S. Fish and Wildlife Service, Sacramento, California. Biological Opinion 1-1-89-F-53, October 30, 1989. 13 pp.

USFWS. 1990. Endangered Species Technical Bulletin. Vol. XV, No.9.

USFWS. 1991. Formal Section 7 Consultation on Renewal of a Five-year Pesticide Use Permit to the California Department of Food and Agriculture for the Use of Malathion to Control Curly Top Virus. U.S. Fish and Wildlife Service, Sacramento, California. Biological Opinion 1-1-91-F-6, September 9, 1991. 15 pp.

USFWS. 1991. Reinitiation of Formal Section 7 Consultation on Effects of Livestock Grazing in the Carrizo Plain Natural Area, San Luis Obispo County, California, Biological Opinion 1-1-89-F-53R, April 11, 1991. 11 pp.

Walker, D. A. 1983. The Kaweah Deer Herd Plan. California Department of Fish and Game. 53 pp.

Whistler, David P. 1973. Personal communication. Letter, on file at Caliente Resource Area.

Williams, D. F. 1979. Distribution and Population Status of the San Joaquin Antelope Squirrel and Giant Kangaroo Rat. Unpublished Report prepared for the California Department of Fish and Game, Sacramento, California. 46 pp.

Williams, D. F. 1985. A Review of the Population Status of the Tipton Kangaroo Rat, *Dipodomys nitratoides*. Unpublished report prepared for U.S. Fish and Wildlife Service, Sacramento, California.

9 pp.

Williams, D. F. 1986. Mammalian Species of Concern in California. California Department of Fish and Game. 111 pp. + appendix.

Williams, D. F. 1991. Personal communication.

Williams, D. F., D. J. Germano, and W. Tordoff. 1989. Endangered Species Study - 1989: Effects of Livestock Grazing on an Endangered Community Dominated by Giant Kangaroo Rats (*Dipodomys ingens*), Progress Report - 1989. Unpublished report dated August 27, 1989. Prepared for The Nature Conservancy, San Francisco, California. 23 pp.

Williams, D. F., D. J. Germano, and W. Tordoff. 1990. Endangered Species Study - 1990: Effects of Livestock Grazing on an Endangered Community Dominated by Giant Kangaroo Rats (*Dipodomys ingens*), Progress Report - 1990. Unpublished Report dated November 29, 1990. Prepared for California Department of Fish and Game, The Nature Conservancy and USDI, Bureau of Land Management. 29 pp.

Woodring, W.P., R. Stewart, and R. W. Richards. 1940. Geology of the Kettleman Hills oil field California, stratigraphy, paleontology and structure. U.S. Geological Survey Professional Paper 195. 170 pp.

Wyss, Andre. 1992. Personal communication. Letter, 13 February 1992.

Appendices

BLM communications site above Lake Isabella

APPENDICES

Appendix A ACECs....442
Appendix B Biological Resources....495
Appendix C Lands....513
Appendix D Livestock Grazing....550
Appendix E Minerals....584
Appendix F Mitigation Measures....607
Appendix G Oil and Gas....633
Appendix H Recreation....695
Appendix I Standard Operating Procedures....733
Appendix J Carrizo Plain Natural Area Activity Plan....741
Appendix K Walker Pass CRMP....787
Appendix L Cultural Resources....823

APPENDIX A - Areas of Critical Environmental Concern

Appendix A-1 ACEC Determinations 443

Coast Management Area 444
California Rocks & Islands
Cypress Mountain
Frog Pond Mountain
Irish Hills
Pt. Sal
Purisima Hills
Rinconada Mine
Rocky Butte
Rusty Peak
Salinas River
Tierra Redonda

Valley Management Area 452
Alkali Sink
Bittercreek
Blue Stone Ridge
Buena Vista
Carrizo
Chico Martinez
Elkhorn Plain
Goose Lake
Kettleman Hills
Lokern
Maricopa Tar Pits
Mouth of the Kern Canyon
Reef Ridge
San Andreas Fault Scarp
Soda Lake

South Sierra Management Area 466
Blue Ridge
Case Mountain
Chimney Peak/Lamont Meadow
Deer Spring
Erskine Creek
Horse Canyon/Sand Canyon
Kernville Hotsprings
Keyesville Historic Mining Area
North Fork of the Kaweah River
Piute Cypress
Walker Pass

Appendix A-2 ACEC Legal Descriptions 480

Appendix A-3 ACEC Support Actions 487

Appendix A-1 ACEC Determinations

Introduction

Background

Areas of Critical Environmental Concern (ACECs) were authorized in Section 202 (c)(3) of the Federal Land Policy and Management Act of 1976 (FLPMA, P.L. 94-579). ACECs are areas where special management attention is needed to protect and prevent irreparable damage to important historic, cultural, and scenic values, fish, or wildlife resources or other natural systems or processes; or to protect human life and safety from natural hazards.

An ACEC designation indicates that the BLM recognizes that an area has significant values, and establishes special management measures to protect those values. In addition, designation also serves as a reminder that significant value(s) or resource(s) exist, to help ensure that they are accommodated when future management actions and land use proposals are considered in or near the ACEC.

To be considered as a potential ACEC, an area must meet both the criteria of importance and relevance. A relevant resource is a significant value or resource of a type described above. An important resource is a value, system, process or hazard which has substantial significance and values. More information on the ACEC designation and process can be obtained in any BLM office in the BLM Manual 1613--Areas of Critical Environmental Concern.

To be designated as an ACEC, an area must require special management attention to protect the important and relevant values. These are management measures which would not be necessary and prescribed if the critical and important features were not present. That is, they would not be prescribed in the absence of the designation. For each potential ACEC identified in this plan, management prescriptions have been developed and are included in the Land Use Allocation section of each alternative presented in Chapter 3.

Categories

In California the following naming configurations are used for grouping:

Group 1. Research Natural Area: A Research Natural Area (RNA) is a physical or biological unit where natural conditions are maintained to the extent possible, and which is reserved for the primary purpose of research and higher education. These conditions are achieved by allowing ordinary physical and biological processes to operate without human intervention; management prescriptions are imposed to limit the full range of multiple land uses or allocations. However, under specific conditions, deliberate manipulation intended to maintain the unique features that the ACEC/RNA was designated for may be authorized. RNAs typify important forest, shrub land, grassland, alpine, aquatic, and geologic types or systems in each region; and can also represent unique natural situations which have characteristics or scientific importance and plant communities of limited distribution and research importance, including international research programs. If proposed land uses conflict with the purposes of an RNA, a withdrawal may be recommended in order to maintain the integrity of the area.

Group 2. Cultural: An area which merits recognition and management beyond that provided through normal resource management for the full range of cultural resources and values. The objective is to manage these areas to conserve the cultural features or values for scientific, education, and/or contemporary ethnic interests. These areas may also be recommended to the National Register of Historic Places or for designation as a National Historic Landmark, if they meet the criteria for eligibility. Although several sites in the Caliente Resource Area have significant cultural resources, they each have other resources of significance as well.

In order to emphasize the protection and management of all significant resources, these sites were considered as ONA/ACECs in this plan rather than Cultural/ACECs.

Group 3. Hazard: Areas where there are natural hazards which significantly endanger human life, health, or safety. This includes areas where human visitation or habitation is likely, such as avalanche areas, soil mantles, areas subject to landslides, seismic areas, cliffs, etc. The objective is to manage these areas to reduce risks to human life, health, or safety; interpret natural phenomena; and/or limit public access if necessary. No areas that met the ACEC criteria were placed in this group.

Group 4. Outstanding Natural Area: An Outstanding Natural Area (ONA) is an area of high public interest which contains outstanding natural features or values. The objective is to conserve these features or values while allowing for public use (i.e., general scientific, recreation, interpretation, and education compatible with the objectives and values for establishing the outstanding natural area). It includes areas of geologic, botanic, zoologic, paleontologic, and physiographic interest within the region. These areas may also be recommended for designation as a National Natural Landmark if eligible. The level of management required is generally less restrictive then for a RNA. Typically, there would be a wide range of uses permitted dependent on the values of resources present.

Identification of Areas

An invitation for the public to nominate areas for consideration as ACECs was published in the Federal Register in August 1991 (FR 56:40341). One nomination was received - The Nature Conservancy nominated the Lokern area. The remaining areas consist of existing ACECs and other lands believed by BLM resource specialists to have some potential to meet the designation criteria.

A total of 37 areas were considered. Of these, 31 were found to meet the criteria. All 31 are proposed for designation in at least one alternative. It should be noted that even when an alternative is considered for designation under several alternatives, the specific management prescriptions will vary in order to reflect the objectives of each alternative. In all cases, designation and management prescriptions apply only to public lands, and minerals activities on Federally reserved mineral estate. Private lands within ACEC boundaries are not affected by these prescriptions. Should private lands within ACEC boundaries be acquired by the Bureau, they will become a part of the ACEC.

Coast Management Area

California Rocks and Islands Wildlife ACEC

The California Rocks and Islands Wildlife Sanctuary ACEC is an existing ACEC withdrawn from settlement, sale, location, and entry, under the general land laws, including the mining laws, and from leasing under the mineral leasing laws. The withdrawals went into effect in April 1983, and the area was designated an ACEC in August 1990.

The entire ACEC extends from the Mexican border to Oregon, but this land use plan only affects those portions of the ACEC in Ventura, Santa Barbara, and San Luis Obispo Counties. This ACEC consists of a multitude of unsurveyed rocks, reefs, and islands along the California coast, including all offshore public land above mean high tide. The size of the ACEC is unknown. The designation was placed for the protection of wildlife, including extensive seabird populations, seals, and sea lions. In many cases, the only threat necessary to disrupt these species is the approach of people. Resource conditions have not changed - this area continues to meet the relevance and importance criteria for an RNA/ACEC.

Cypress Mountain

The proposed Cypress Mountain ACEC consists of 1,092 acres of public land within T. 27 S., R. 9 E., Sections 1, 12, 13, and T. 27 S.,

R. 10 E., Sections 9, 17. Cypress Mountain is located in the Santa Lucia Range in San Luis Obispo County, southeast of the city of Paso Robles.

The following plant communities that are considered rare by the California Department of Fish and Game occur within the proposed Cypress Mountain ACEC: Northern Interior Cypress Forest and Serpentine Chaparral. The Northern Interior Cypress Forest on Cypress Mountain is dominated by Sargent cypress. Sargent cypress occurs on serpentine rock along the main summit of the Santa Lucia Range, where it forms three extensive but well separated stands (Hoover, 1970). Cypress Mountain may be the only area of public land where Sargent cypress exists. Although serpentine rock, with its ultrabasic properties, is such a harsh substrate for most plants, some plants have adapted to be dependent upon serpentine. These plants are known as serpentine endemics and many are considered quite rare. Hardham's bedstraw is a rare serpentine endemic known to occur within the proposed ACEC. This plant is on the California Native Plant Society List 1B and is a Category 3C candidate for Federal listing. Other rare serpentine endemics that are associated with Sargent cypress may occur here. These are San Luis sedge, a CNPS List 1B plant; Santa Margarita manzanita, a Federal Category 2 candidate; San Luis mariposa lily, CNPS List 1B and Federal Category 3C candidate; and Cuesta Pass checkerbloom, Federal Category 2 candidate and State listed as Rare.

Cypress Mountain is primarily underlain by rocks of the Franciscan Complex, including serpentine and shale. Most of Cypress Mountain, including the south half of Section 12 and the northeast-quarter of Section 13 is underlain by serpentine. A prominent unnamed peak in the NW¼ Sec. 1 consists of a Tertiary rhyolite plug. There is another small plug in the NW¼ Sec. 7. Both intrusions lie along a prominent northwest to southeast trending fault zone. Within this fault zone are areas of intense alteration, a result of hot water flow associated with Tertiary volcanism. There are at least four mines or prospects along this fault, presumably for mercury. These include the Cypress Mountain Group in the north center of Section 1 and the Kismet Group in the northwest-quarter of Section 7. In Section 1 manganese at the Mayfield Mine is associated with the volcanic rocks found there. The manganese body occurred as an inclusion, with little potential for additional material. The known mercury occurrences have low to moderate for mercury, gold, antimony or selenium. The serpentine at Cypress Mountain has medium to high potential for small podiform bodies of chromite.

The only apparent past disturbance on Bureau land is a trespass road. There are a few houses nearby. The area is currently closed to grazing to protect watershed and wildlife values. No oil and gas leases or mining claims occur within this area. There are no other land use authorizations. Compatible uses include hiking, horseback riding, and hunting, as well as other non-impacting recreational activities such as nature study. Incompatible uses include off-road vehicle use, mining, grazing, and oil and gas development.

Cypress Mountain is currently protected from indiscriminate use because it is not highly accessible. Access should remain limited. The area should also be protected from surface disturbance. The area clearly meets the relevance and importance criteria established for ACECs. Designation of Cypress Mountain as an ONA/ACEC is warranted to protect the sensitive plant communities that occur here.

Frog Pond Mountain

This proposed ACEC consists of a 53-acre parcel of public land located in western San Luis Obispo County. The parcel is located four air miles southwest of Atascadero and eight air miles northeast of Morro Bay. The proposed ACEC includes Lots 1 and 2 of Section 31, T. 28 S., R. 12 E., MDB&M.

This potential ACEC includes Frog Pond Spring, which was designated as a Public

Water Reserve in 1974 under the authority of the Executive Order of April 17, 1926, and Executive Order 6910 of November 26, 1934. The ACEC also includes 10 acres of California Bay Forest, a plant community considered rare by the California Department of Fish and Game. The California Bay Forest on public land ranges from exclusive stands of California bay forming closed canopies along the riparian zone supported by Frog Pond Spring, to mixed stands of California bay, toyon, black sage and chamise on the north facing slopes. Deciduous willows with maidenhair, sword and coffee ferns, moss and other wet area species occur along a second riparian corridor that extends north of Frog Pond Spring. This small patch of California Bay Forest may be one of the few locations on public lands, and one of the southernmost examples of this community type.

Steep topography and the presence of dense vegetation which includes poison oak at the one easily accessible location of the parcel has helped to prevent significant impacts to the site. Current impacts to the parcel include an unauthorized water diversion by a private landowner for domestic household use. Increased water diversion or even continued water diversion may adversely impact the California Bay Forest which is heavily dependent on moist conditions.

Most of the Frog Pond Mountain ACEC is underlain by Jurassic basalt flows, except for a bed of chert several hundred feet wide on the western part of the area. Manganese is often associated with these chert beds in the Coast Ranges. There is low potential for occurrence of manganese.

The parcel is also adjacent to a growing development of private home sites. With increased population, it is anticipated that human visitation and use of the site will increase. Without special management attention adverse impacts to the site will result. Incompatible uses may include camping or equestrian use in the riparian zone, off road travel by mountain bicycles or motorcycles, firewood collection, and trash deposition. Compatible uses would include hiking, camping in upland areas, and nature study.

To safeguard the riparian resources, including the California Bay Forest, Frog Pond Spring and any other water sources on the parcel must be protected from adverse impacts. The unauthorized water diversion should be evaluated to determine if adverse impacts are occurring to the riparian resources and the unauthorized use should be resolved. Camping and use of horses should be prohibited in the riparian area. To limit motorized vehicles and bicycles to existing roads, the area should be designated as closed to OHV use. To protect the California Bay Forest, collection of vegetative materials should be by permit only.

It is unclear how the existing Public Water Reserve affects the riparian resource values which this ACEC is intended to protect. A December 23, 1974 memorandum requested notation of Frog Pond Spring as a Public Water Reserve on the Master Title Plat. This December 23, 1974 memorandum cites authority for notation as Executive Order 6910 dated November 26, 1934 and the Executive Order of April 17, 1926. Executive Order 6910 was established under the authority of the Pickett Act of June 25, 1910 (December 23, 1974 Memorandum). The Pickett Act authorized the President to withdraw and reserve lands for water-power sites and other purposes (43 USC 141). Executive Order of April 17, 1926, Public Water Reserve No. 107, was established under the authority of Section 10 of the Stock-Raising Homestead Act of December 29, 1916 (BLM Manual 7250.03a(3)). Public Water Reserve No. 107 withdrew all lands containing springs and water holes yielding amounts in excess of homesteading requirements (BLM Manual 7250.12A(2)) that existed on vacant, unappropriated and unreserved public lands (BLM Manual H 7250-1 IV). A February 16, 1983 Solicitor's Opinion concluded that the use of water reserved by Public Water Reserve No. 107 was limited to human and animal (livestock) consumption. Instruction Memoranda 83-454, April 12, 1983 and 85-228,

January 25, 1985, also indicate that the purpose of withdrawal under Public Water Reserve 107 was for human and animal (livestock) consumption. BLM California Handbook H 7250-1 California Water Rights Procedures, however, indicates that if a spring's availability for public watering purposes affects the use of surrounding habitat, it may meet the importance criteria of a Public Water Reserve. The use of the word habitat implies a value to a Public Water Reserve not limited to just human and livestock consumption. While both the Stock-Raising Homestead Act and the Pickett Act were repealed by Section 704(a) of the Federal Land Policy and Management Act (FLPMA), reservations made prior to October 21, 1976, remain in effect until changed in accordance with Sections 201 and 204 of FLPMA.

No oil and gas leases, grazing authorizations or land use authorizations have been issued within this proposed ACEC. Most of the area is underlain by Jurassic basalt flows, except for a bed of chert several hundred feet wide on the western part of the area. Manganese is often associated with these chert beds in the Coast Ranges. Although there are no active mining claims, there is a low potential for the occurrence of manganese.

ACEC designation will provide an opportunity for public education regarding riparian systems, preserve an important example of an extremely rare community, and protect a sensitive riparian system. This area meets the relevance and importance criteria and consideration as an RNA/ACEC is warranted.

Irish Hills

The proposed Irish Hills ACEC consists of 1,097 acres of Bureau surface and Federal subsurface in T. 31 S., R. 11. The area is approximately six miles southwest of the city of San Luis Obispo, and just southeast of Montana de Oro State Park.

The primary plant communities here are Coast Live Oak Forest, Southern Bishop Pine Forest, and Chaparral (Holland 1986). The Southern Bishop Pine Forest is a plant community considered rare by the California department of Fish and Game. Bishop pine is plentiful in the Coon Creek watershed extending from its summit to the sea. This is a closed-cone pine whose seeds are normally released only during fire (Hoover 1970). Some of the largest oaks in San Luis Obispo County occur here and manzanitas two feet in diameter and forty feet high have been identified. One rare plant, Morro manzanita (FC1/-) is known to occur west of the proposed ACEC boundary and is suspected to occur within the proposed ACEC as well. More survey work is needed to characterize the flora and fauna of these parcels. A waterfall on Diablo Creek has scenic value.

The area has a number of rights-of-way, including roads and transmission lines serving the nearby nuclear power plant. There is no general public access to several of the parcels due to security measures at the nuclear facility. The area is unsuitable for grazing. There are no mining claims on public lands within the proposed ACEC. There are three oil and gas leases within the proposed ACEC. A portion of this area is patented to the State of California through the R&PP Act. A portion of the proposed ACEC is withdrawn as CA 250 03/15/1973.

This ACEC lies within the Santa Maria Basin which is considered to have high potential for the occurrence of oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario). A drill well operated by Texaco was plugged and abandoned in 1958.

Incompatible uses include mining, off road vehicle use, disposal of the public land, and unconstrained leasing of oil, gas, and geothermal resources. Compatible uses include hunting, photography, birdwatching, and nature study. The area meets the relevance and importance criteria, designation of the area as an ONA/ACEC, although the need for increased management attention is unclear.

Point Sal

Point Sal, a dune-covered rocky promontory, is the westernmost terminus of the east-west trending high dunal Point Sal ridge of northern Santa Barbara County, California. Legal location is T. 10 N., R. 36 W., Section 34, SBB&M. The ACEC is included within the Pacific coastal Nipomo Dunes - Point Sal National Natural Landmark located about 14 miles southwest of Santa Maria, California. The ACEC is presently enclosed by State land on the south, and private land to the east and north, with the Pacific Ocean forming the western boundary. Point Sal has been aptly described as "one of the most picturesque points in the county of Santa Barbara", (California Coastal Commission).

Point Sal was designated as an ACEC in September 1984, and presently contains some 77 acres. The acreage could increase somewhat if Lion Rock, an offshore rock, is added to this ACEC. The purpose for establishing Point Sal as an ACEC is to provide protection and special management attention to numerous sensitive resources, and developing uses which will not damage or endanger the resources. Management objectives are to provide maximum protection to the unique visual, cultural, geologic, and wildlife resources, as well as, rare, threatened, and endangered plant and animal species, while allowing reduced or minimal impact activities such as pedestrian trail walks, and scientific studies. Point Sal is a very unique visual resource, being one of the few remaining minimally developed areas of the northern Santa Barbara County and southern San Luis Obispo County Pacific coastline. Views are, simply, spectacular.

The premiere cultural resource in the ACEC is the cluster of 28 archaeological sites. The sites are highly significant remains of Native American occupations. The archaeological sites within the ACEC are unique, and are among the premiere cultural resources of coastal California. The sites are highly significant remains of successive Native American occupations. Radiocarbon samples from several of the sites have yielded dates ranging from 4800 to 250 years before present. The dates indicate a long history of occupation and utilization by Native American cultural groups.

The location of Point Sal is near the boundary between two major language dialect areas of the native Californian Chumash peoples: the Purisimeño (Santa Barbara area) and the Obispeño (San Luis Obispo area). A historically documented Chumash village (Ataies) may have been located on or near the ACEC (Glassow, 1991). Point Sal is also near the territorial interface of the Chumash and Salinan speakers, two separate and distinct languages, but somewhat related linguistically (Krober 1925). The high frequency of archaeological sites within the ACEC implies that the entire Point Sal area served as an important occupational use area for procurement of various marine and terrestrial resources. The sites range in size and postulated use from larger residential bases, various sized seasonal camps occupied for relatively limited periods and purposes, to small day use areas.

The sites present at Point Sal are very important to regional scientific research as some "are larger and contain denser cultural remains than do sites immediately beyond the project area", (Glassow 1991:81). Also, the sites provide unique opportunities to study, "the manner in which the utilization of the shellfish from an intertidal habitat may have changed through time in response to environmental changes", (Glassow 1991:81). Moreover, Point Sal cultural resources are relatively intact cultural remains considered to be very unique along the highly developed and industrialized California coast.

Pt. Sal possesses a number of unique biological attributes. The area is a transition zone where plant species most common to the north are sympatric with species more common to the south, forming unique plant species assemblages. Several endemic species may also be present on the parcel, and many are candidates for Federal listing.

Candidate plant species known to occur on public lands include the island wallflower (FC2/-) and surfthistle (FC1/CT). Other candidate species, such as the San Luis Obispo County monardella (FC2/-) have high potential to occur on this parcel.

These unique and diverse plant communities, in association with topographic features, provide a variety of undisturbed wildlife habitat from marine, intertidal, and subtidal to terrestrial.

Researchers, (Glassow 1991), have pointed out that at Point Sal the underlying bedrock shelves extend into the intertidal zone, which provides an ideal habitat for shellfish and other intertidal lifeforms preferring rocky beaches.

Several State and Federal sensitive and rare, threatened, and endangered wildlife species use the area. Such species include the California brown pelican (FE/CE), American peregrine falcon (FE/CE), and California least tern (FE/CE). In addition, a variety of marine and terrestrial wildlife species inhabit the area. Lion Rock, which lies just off-shore serves as a sealion rookery and seabird-nesting site.

Point Sal is located in the southwestern portion of the Coast Range geomorphic province. A sequence of mafic and ultramafic rocks which are contained within the Franciscan Complex are exposed at Point Sal. These rocks are thought to represent typical oceanic crust, and are called an ophiolite sequence. In the late 1800s gold and some platinum and chromite was mined from beach sands in the vicinity of Point Sal. There are no other known mineral occurrences on the public land here; however there is reference to a copper prospect 2 miles to the east and chromite about 2 miles southeast. A small amount of gypsum was mined from the area, perhaps as far as 5 miles to the east in the late 1800s. The potential for economic quantities of locatable minerals is considered to be low.

This ACEC lies within the Santa Maria Basin which is considered to have high potential for the occurrence of oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario).

Numerous seeps and springs are present at Point Sal ACEC. Rain soaking through the dunes follows the underlaying bedrock strata downhill and discharges at the coastline just above the high tide level, (Vaughn, n.d.). Tests indicate that presently the water is probably contaminated by fecal coliform, but is not heavily mineralized, (Glassow 1991).

The ACEC has been managed under the Point Sal ACEC Plan adopted by the BLM in September, 1984. Many of the objectives and recommendations of the plan have been partially implemented. An important addition to these objectives would be to increase the size of the ACEC, through acquisition, to include an additional 411 acres of relatively undisturbed lands surrounding the public land on all sides but the western ocean bordered side. These surrounding private lands contain resources which are similar to those in the present ACEC.

A primary goal of the Point Sal ACEC when it was designated was to provide protection and special management attention to sensitive wildlife, plants, archaeological, and geologic resources. An ACEC designation does not necessarily create an area in which no use or no development can occur. A particular ACEC designation may provide for a range of multiple-use activities, including commodity-production activities. However, it is essential that the sensitive environmental resources within that area are not irreversibly damaged or endangered.

Presently, the Point Sal ACEC has no mining leases or claims, one oil and gas lease mitigated by restrictions concerning surface use, no grazing leases, and no existing planned land use authorizations.

Incompatible uses include possible trespass grazing, trash dumping from campers, off road or indiscriminant vehicle use, artifact removal, overnight camping, illegal shooting of wildlife, and plant removal or damage.

Compatible uses include day visitation, hiking along established stabilized trails, bird watching, nature study, photography, scientific archaeological, ecological, and environmental studies, and education through interpretative devices.

Point Sal ACEC continues to meet the relevance and importance criteria, and consideration as an RNA/ACEC is warranted.

Rinconada Mine

The Rinconada Mine area lies ten miles east of San Luis Obispo, just south of Santa Margarita Reservoir. It was nominated as an ACEC because it was thought that the San Luis Obispo sedge (CNPS List 1B) and Palmer's monardella (CNPS List 4) occur on the parcel. Neither plant species is documented on the parcel. San Luis Obispo sedge occurs immediately north of Rinconada Mine within Los Padres National Forest. Although potential habitat for this species may occur on the Bureau parcel, the National Forest manages much larger areas of similar habitat contiguous to the nominated area. It was determined that this parcel did not met the relevance and importance criteria, and so was not considered further for ACEC designation.

Rocky Butte

Rocky Butte consists of an isolated 40-acre parcel located in the Santa Lucia Mountains near Cambria, California. Much of this parcel contains coastal vegetation growing on serpentine soils. This area is similar in vegetative and geological composition to public lands located at nearby Cypress Mountain, although this parcel does not include any Cypress. There is no record of other sensitive species at this site, nor have any threats to natural communities been identified. As resources should be adequately protected by the management proposed in the RMP, this parcel will not be considered as an ACEC at this time.

Rusty Peak

The proposed Rusty Peak ACEC consists of 800 acres of public land within T. 28 S., R. 11 E., Sections 29, 30, 31, 32. This area is approximately eight miles west of Atascadero, and six miles north of Morro Bay in San Luis Obispo county.

Vegetative communities consist of serpentine chaparral, coast live oak woodland, and valley and foothill grassland (Holland 1986). Serpentine soils are present within the proposed ACEC. The San Luis serpentine dudleya (FC3C/-) is known to occur here and potential habitat exists for other serpentine endemics such as the San Benito fritillary (FC2/-), and the Brewer's spineflower (FC2/-). Oaks occur on site, and the area has high quality scenic values.

This ACEC is within the historic range of the California condor (FE/CE). Lacking large rock promontories or large trees suitable for perching, the only conceivable use to which condors may put this area is foraging. The habitat here is typical of the coast range, but unique for the Bureau because of the limited amount of such habitat under Bureau management. No other sensitive species are known or thought to occur on this parcel. Wildlife species typically seen are mule deer, bobcat, brush rabbit, fence lizard, California quail, California towhee, scrub jay, American kestrel, and red-tailed hawk.

Most of this ACEC is underlain by Jurassic basalt flows, however the southwest portion of the area consists of serpentinite. On the northwest end of the area in the NE¼SE¼ Sec 30, a small amount of chromite was recovered at the Middlemast Ranch Mine. In Section 32 a small tonnage of chromite was mined from the Jitney Mine. In addition, there is a copper prospect known as the Prodigal Son Mine in Section 30. There is low to moderate potential for the occurrence of additional chromite here. The potential for economic deposits of copper is extremely low.

The area is unsuitable for grazing and is

closed to grazing authorizations. There are no oil and gas leases or mining claims within the proposed Rusty Peak ACEC. There are no land use authorizations. Incompatible uses include large scale extraction of solid leasable minerals and oil, gas, and geothermal resources; disposal of the public land; and off road vehicle use. Compatible uses include mineral leasing subject to major constraints, hunting, photography, and nature study. The area meets the relevance and importance criteria, and further consideration for ONA/ACEC designation is warranted, although there is a lack of evident threats to the resources.

Salinas River

This proposed ACEC consists of 1,000 acres of public and 840 acres of Federally reserved mineral estate. The ACEC is 2 miles east of Santa Margarita, San Luis Obispo County, California (T. 29S., R. 13E.). This proposed ACEC includes six miles of the Salinas River starting from State Route 58 on the north end, to one mile north of the Las Pilitas Road at the south end. There are no land use authorizations, mining claims, oil and gas leases, or grazing leases within this proposed ACEC.

This potential ACEC includes excellent examples of several rare riparian communities such as the central coast live oak riparian forest, central coast arroyo willow riparian forest, sycamore alluvial woodland, and central coast riparian scrub (Holland 1986). The riparian zone along the river harbors a wide diversity of plants and animals, many of which are not found elsewhere under the management of the BLM's Caliente Resource Area. Two plants which are candidates for Federal listing occur within the proposed ACEC, Hardham's evening-primrose (FC2/-) and one-awned spineflower (FC2/-). Additionally, this riparian system, with its nearly perennial water flow, supports habitat for and is within the range of nine sensitive species of animals. More survey work is needed to document the occurrence of these animals within the ACEC boundaries. The Salinas River, including the section within the proposed ACEC, provides critical migratory and nesting habitat for Neotropical Migrating Birds, an assemblage of species which has experienced a drastic population decline in recent years.

The BLM portion of the river is entirely underlain by Cretaceous granitic rock. Most of the rock is deeply weathered and commonly decomposed, giving rise to a highly dissected terrain that supports a dense growth of chaparral. Slightly weathered rock is intermittently exposed along the Salinas River. In a 1985 BLM mineral exam of a parcel of land within the proposed ACEC, a small amount of gold was recovered by panning gravels of the Salinas River. Although the area does not have potential to support a viable economic operation, there may be sufficient gold for hobby or recreational mining.

These resources could be threatened by incompatible uses such as mining, grazing, oil and gas development, and water diversion. Through withdrawal from mining, stipulating no surface occupancy for oil and gas development, and obtaining water rights, the most impacting of these threats could be avoided.

Compatible uses would include hiking, nature study and photography, birdwatching, and ecological research. ACEC designation will provide an opportunity for public education regarding riparian systems, preserve an important example of a rare plant community, and protect a sensitive riparian system. For these reasons, this area meets the relevance and importance criteria and consideration as an ONA/ACEC is warranted.

Tierra Redonda

Tierra Redonda Mountain, situated in northwestern San Luis Obispo County between Lake Nacimiento and Lake San Antonio, is located about 20 miles east of the Pacific Ocean and 20 miles northwest of Paso Robles. The BLM administers 320 acres of public land and 80 acres of reserved mineral estate in T.

25 S., R. 9 E., Sections 10 and 11.

Tierra Redonda Mountain was designated as open space in the San Luis Obispo County General Plan. The purpose of this designation is to retain areas with fragile plant or animal communities in a natural or undisturbed state. The dominant plant community is blue-oak woodland. Grassland, chaparral, and unique sand dunes also occur here. Limestone streamside habitat and marshland occur nearby. The site is valuable for its biodiversity, scenic views, wildlife habitat, and geology. The area contains several rare or endemic plant species. One of the largest concentrations of *Chorizanthe* species in the world is found here. One species of *Chorizanthe, C. rectispina* which is a Federal Category 2 candidate, is suspected to occur here. Other sensitive plant species include ribbonwood, which was formerly plentiful in the upper Arroyo Grande watershed, but in recent years a large percentage of the shrubs have been destroyed by development (Hoover, 1970). Salinas Valley goldfields occur in scattered patches in sterile white sand. This species is a Federal Category 3C candidate. The San Luis Obispo County lupine, a Federal Category 2 candidate also occurs here. This San Luis Obispo County endemic is the official flower for the county. Prairie falcon, a State species of special concern, is known from this area.

Tierra Redonda Mountain is also the type area for the Tierra Redonda Formation, a sequence of marine sedimentary rocks. This is its thickest locality, where it forms sandstone cliffs. On the south side of Tierra Redonda Mountain, the Vaqueros Formation underlies the Tierra Redonda Formation. The Vaqueros Formation is highly fossiliferous. In places the formation contains fossil mollusks, echinoids, sand-filled worm tubes, foraminifers, bone and fish scales. Mollusk shells and fragments are common. Other beds are composed almost entirely of oyster shell fragments. On the south side of Tierra Redonda Mountain are sandy beds several feet thick, composed almost entirely of fossil turritellas. This feature is extremely rare. Further investigation is needed to understand this unique habitat. The sandstone cliffs provide habitat for nesting birds.

This area is considered to have moderate occurrence potential for oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario), and moderate occurrence potential for phosphate.

South of Tierra Redonda Mountain, most of the adjacent private land has been developed for residences associated with the "community" of Oak Shores.

Compatible uses include hiking, horseback riding, hunting, as well as other non-impacting recreational activities such as nature study. Incompatible uses include off road vehicle use, grazing, mining, and oil and gas development. Tierra Redonda Mountain is unavailable for grazing leasing. No oil and gas leases, mining claims, or land use authorizations occur within this proposed ACEC.

Very little land administered by the Caliente Resource Area within the Coast Ranges is underlain by the Vaqueros or Tierra Redonda Formations. This site provides students and scientists the opportunity for continued study of the geology, stratigraphy and paleontology of these rocks.

The fragile sand dune community should be protected through public education and signing. Because the area has a number of sensitive resources and development is rapidly encroaching, RNA/ACEC designation is warranted to preserve these resources.

Valley Management Area

Alkali Sinks

This proposed ACEC consists of 442 acres in three parcels in the San Joaquin Valley, Kern County, California. One 40-acre parcel of public land is within the Goose Lake Bed (T. 26 S., R. 21 E. Section 2 SE¼ NE¼ MDB&M). The other two parcels are southeast of the Buena Vista Lake Bed (T. 32 S., R. 26 E.

Section 8 SW¼ SW¼ and Section 22 S½).

This potential ACEC is proposed to protect the rare valley sink scrub community (Holland 1986) and associated wildlife. This community has largely been extirpated from the Central Valley by conversion to agricultural fields, construction of canals and transportation corridors, and urbanization. These three parcels exhibit prime examples of the variation in species composition naturally found in this community. All parcels have a low potential for blunt-nosed leopard lizard (FE/CE), while one parcel has high potential for San Joaquin kit fox (FE/CT). Each parcel has a moderate potential for Tipton kangaroo rat (FE/CE). Federal candidate species of annual saltbush and recurved larkspur (FC2/-) occur within the ACEC. More survey work is needed to characterize the flora and fauna of these parcels.

This ACEC lies within the San Joaquin Valley which is considered to have high potential for the occurrence of oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario). There is no known potential for any other mineral commodities.

These parcels are surrounded by agricultural lands and are threatened by incompatible uses such as agricultural trespass, oil and gas development, dumping, off road vehicle use, and unauthorized grazing. Parcels within this proposed ACEC are closed to grazing and are unleased to oil and gas. No mining claims occur within the parcels. Possible restrictions to protect this habitat would be to allow oil and gas development only with a no surface occupancy stipulation, restrict vehicle use to designated routes of travel, erect information signs, and fence to reduce the risk of grazing trespass and dumping. Without special management attention unauthorized uses may occur, resulting in resource degradation.

Compatible uses include hiking, nature study and photography, birdwatching, and ecological research. ACEC designation will provide for protection of this valuable resource, and contribute to educating the public regarding the value and importance of the Central Valley's natural history. For these reasons, this area meets the relevance and importance criteria and consideration as an RNA/ACEC is warranted.

Bittercreek

This proposed ACEC consists of 960 acres of public lands with Federal mineral estate, and 4,400 acres of Federal mineral estate without surface ownership, located in southwestern Kern County. These lands are located 13 air miles east of Cuyama and 9 air miles south of Maricopa. This proposed ACEC lies within T. 10 N., R. 23 and 24 W., SBB&M.

This potential ACEC includes all Bureau managed public lands and Federal mineral estate within the boundaries of Bittercreek National Wildlife Refuge. Bittercreek National Wildlife Refuge was established by the U.S. Fish and Wildlife Service to protect foraging habitat for the California condor (FE/CE). The area also provides habitat for the San Joaquin antelope squirrel (FC2/CT), San Joaquin kit fox (FE/CT), blunt-nosed leopard lizard (FE/CE) and giant kangaroo rat (FE/CE). The area has been identified by the U.S. Fish and Wildlife Service as a potential reserve area to assist in the recovery of the San Joaquin kit fox. The area is also within two Essential Condor Habitat Areas, the Carrizo and Elkhorn Plains, and the Southwest Kern County.

The area is relatively undisturbed and the primary land use has been livestock grazing. Prior to acquisition of the Hudson Ranch by the U.S. Fish and Wildlife Service, the area was considered for subdivision and development. Adjacent areas, such as the San Emigdio Ranch, currently have subdivision and development plans.

This ACEC lies within the Cuyama Basin which is considered to have high potential for the occurrence of oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario).

Incompatible uses would include most

development activities, such as subdivisions, mineral extraction and recreational complexes. Dispersed recreation, including hunting, would also be incompatible if California condors begin to use the area. In addition to livestock grazing, compatible uses would be restricted to temporary activities that would not alter the suitability of the area as condor foraging habitat. If condors begin using the area, compatible uses would be further restricted to those activities that would not disturb foraging condors.

In addition to protection from extensive surface disturbance, seasonal restrictions and limits on access may be required to prevent disturbance to condors.

Livestock grazing is currently authorized through two grazing leases on 760 acres of public land. Unauthorized livestock grazing occurs on the remaining 200 acres. To resolve the unauthorized grazing on the unallotted 200 acres, the Bureau has proposed to issue a grazing authorization to the U.S. Fish and Wildlife Service. Oil and gas leases are the only mineral leases that currently exist in this potential ACEC. Development of these leases and issuance of future leases may be restricted in order to be compatible with ACEC objectives. There are no active mining claims or existing land use authorizations. Future mining claims will require a plan of operations and future land use authorizations will be screened for compatibility with ACEC objectives.

Designation as an ACEC will provide the special management attention required for management of Bureau administered surface and subsurface to be compatible with the U.S. Fish and Wildlife Service's management of the surrounding Bittercreek National Wildlife Refuge. For the reasons described above, the area meets the relevance and importance criteria, and consideration as an ONA/ACEC is warranted.

Blue Stone Ridge

This proposed ACEC consists of 2,573 acres of public land and 2,833 acres of mineral estate within T. 25 S., R. 17 E., Sections 18, 19, 22, 23, 24, 25, 26, 27, 28, 29, and T. 25 S., R. 16 E., Sections 1, 12, 14, and 24. The area is generally located in the northwestern-most portion of Kern County and the northeastern-most portion of San Luis Obispo County.

Blue Stone Ridge is considered to be the northern end of the Temblor Range. Biogeographically the area is an island of the Inner South Coast Ranges within the southern part of the San Joaquin Valley. Eleven different plant communities are known to occur here (Holland 1986). Good examples of formerly common plant communities, such as Upper Sonoran Subshrub Scrub Community and Valley Needlegrass Grassland (Holland 1986), are found here along with several sensitive plant species. Sensitive plants include hollisteria (FC2/-) and oval-leaved snapdragon (FC2/-). South Coast Range morning glory (FC2/-) is suspected to occur on Orchard Peak within this proposed ACEC. A morning glory species has been discovered here, but verification is needed to determine which species it is. Spanish bayonet (no status) has been documented in a few large colonies on the southwest side of Orchard Peak. This species is rare and localized on Orchard Peak (Twisselmann 1967).

Sensitive animals that have been found on site include the blunt-nosed leopard lizard (FE/-), the San Joaquin kit fox (FE/-), and the giant kangaroo rat (FE/CE). Both ferruginous hawks (FC2/-) and a Swainson hawk (FC3C/CT) have been observed hunting over the parcel. Golden eagle (State of California Fully Protected Species) has been observed here. Excellent habitat for the desert night lizard exists here. Desert night lizard is associated with Spanish bayonet in the Orchard Peak area. The U.S. Fish and Wildlife Service in its Condor Recovery Plan has identified this area as "Essential Condor Habitat".

Several areas within the proposed ACEC appear to have been heavily grazed in the past, as indicated by the lack of young oak or juniper trees. In some of the canyon bottoms

there is very little native vegetation left. Areas that were not grazed as heavily contain the most diverse flora (McLeod 1989). Most of this proposed ACEC is currently managed as an "M" category grazing allotment. Approximately 160 acres of public land in T. 25 S., R. 17 E., Section 24 are unallotted.

One existing right-of-way is authorized within the proposed Blue Stone Ridge ACEC. A second right-of-way application is pending. There are no mining claims or oil and gas leases within the area.

Portions of this ACEC lie within the San Joaquin Valley which is considered to have high potential for the occurrence of oil and gas, the remainder has moderate potential (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario).

Uses incompatible with the protection of the natural resources include localized heavy grazing; off road vehicle use; disposal of the public land; and certain activities associated with the leasing and development of oil, gas, and geothermal resources. Compatible uses include hunting, photography, and nature study.

Based upon the above information, the proposed ACEC meets the relevance and importance criteria. Designation as an ONA/ACEC is warranted to protect and enhance the plant communities and sensitive species that occur here, and to provide an opportunity to educate the public.

Buena Vista

This potential ACEC includes 20,820 acres of Federal surface and subsurface, and 12,940 acres of Federal mineral estate in western Kern County. These lands are located near McKittrick, Derby Acres, Fellows, Taft and Maricopa.

This potential ACEC includes some of the most productive oil and gas fields under Bureau management. Three fields, Midway-Sunset, Buena Vista and Elk Hills, are considered giant fields with over 100 million barrels of initial reserves. Midway-Sunset is the second most productive field in the state of California and the fourth most productive field in the country. Two major producers of absorbents, have mined siliceous shale from this area for about twenty years (one mine is just out of the proposed boundary). Due to the vast amount of this material present, the area is considered to have high potential for development. Sand and gravel is intermittently mined from locations within the area primarily for oil field related uses.

In addition to the rich oil and gas resources, the area is also important habitat for the San Joaquin antelope squirrel (FC2/CT), San Joaquin kit fox (FE/CT), blunt-nosed leopard lizard (FE/CE), giant kangaroo rat (FE/CE), short-nosed kangaroo rat (FC2/-) and Hoover's woolly-star (FT/-). The area has been identified by the U.S. Fish and Wildlife Service as a potential reserve area to assist in the recovery of the San Joaquin kit fox. This potential ACEC includes lands within the Taft and Elk Hills blunt-nosed leopard lizard essential areas.

Lands in the area range from intensively developed oil fields to relatively undeveloped areas. Sensitive species can occur throughout the area, including the intensively developed oil fields. The primary factor affecting sensitive species is habitat loss due to oil field development and maintenance. Other sources of impacts to sensitive species include collisions with vehicles and equipment, collapse of dens or burrows, entrapment in pipelines or well cellars, and entrapment in oil spills.

The challenge for the area is to manage oil field operations to minimize impacts to sensitive species. Careful planning, to include maximum use of previously disturbed areas, and modification of construction and maintenance techniques, has been successfully used to allow oil field development while meeting the Bureau's responsibility under the Endangered Species Act. In addition to compliance with the

Endangered Species Act, oil field activities often involve coordination between several programs including cultural resources, hazardous waste and realty. Such multiple requirements increase the complexity of application processing to authorize oilfield development projects.

incompatible uses for the area include shooting within developed oilfields and off-road vehicle travel. Most development, carefully planned to be of minimum impact, is compatible with the objectives for this ACEC.

A portion of this ACEC is within the Temblor National Cooperative Land and Wildlife Management Area.

Numerous existing authorizations, including land use authorizations, and oil and gas leases occur in the area. These existing authorizations are primarily oil field related and requests for such authorizations are expected to continue at a high volume. Ten existing grazing leases will continue to be authorized. There are over 100 active mining claims and 114 millsite claims. This includes one siliceous shale mine that covers over 300 acres.

Designation as ACEC would provide the special management attention necessary to coordinate the numerous requirements for efficient processing of oil field rights-of-ways, permits, APD's and sundry notices. For the reasons stated above, this area meets the relevance and importance criteria and consideration as an ONA/ACEC is warranted.

Carrizo

This proposed ACEC includes approximately 156,400 acres of Federal land located in southwestern San Luis Obispo County. Approximately 40,000 acres of private land fall within the ACEC boundary, but are not a part of the ACEC. A more specific description by alternative can be found in Appendix A-2. The area is located 50 miles southwest of Bakersfield and 50 miles southeast of San Luis Obispo. This proposed ACEC includes the Carrizo Plain and the Caliente Mountain Range.

Carrizo Plain The Carrizo Plain is the largest remaining contiguous representative of the San Joaquin biogeographic province. Although over 40,000 acres were at one time cultivated, and the entire area has been extensively grazed by both sheep and cattle, the Carrizo remains relatively undisturbed. The area is a diverse complex of valley sink scrub, valley saltbush scrub, interior coast range saltbush scrub, upper Sonoran subshrub scrub, non-native grassland, juniper-oak cismontane woodland and cismontane juniper woodland and scrub. The area is one of the largest contiguous habitats for the State listed San Joaquin antelope squirrel (FC2/CT), and the State and Federally listed San Joaquin kit fox (FE/CT), blunt-nosed leopard lizard (FE/CE) and giant kangaroo rat (FE/CE). The area is also recent habitat for the Federally and State listed California condor (FE/CE). Three Federally listed plant species, California jewelflower (FE/CE), San Joaquin woolly threads (FE/-) and Hoover's woolly-star (FT/-), also occur within the area. Several Federal candidate plant and animal species, including, oval-leaved snapdragon (FC2/-), recurved larkspur (FC2/-), Comanche Point layia (FC2/-), heart-leaved saltbush (FC2/-), Bakersfield saltbush (FC2/CE), forked fiddleneck (FC2/-), hollisteria (FC2/-), cotton-flowered buckwheat (FC3C/-), short-nosed kangaroo rat (FC2/-), mountain plover (FC2/CSC), long-billed curlew (FC2/CSC), San Joaquin pocket mouse (FC2/CSC) and ferruginous hawk (FC2/-), are also known to occur in the area. Separated from the Valley floor by the Temblor Range, the size, resources values, isolation and relatively undisturbed nature, distinguish this area as ideal for a natural area that will promote conservation of the vanishing San Joaquin flora and fauna.

The Carrizo Plain is identified by the U.S. Fish and Wildlife Service in recent Recovery Plans for the San Joaquin kit fox, blunt-nosed leopard lizard and California condor for acquisition and management to promote recovery of these species. The Carrizo Plain

and associated Elkhorn Plain also support some of the most extensive populations of giant kangaroo rats.

Although originally recognized for the biologic values, the Carrizo Plain also contains significant archaeologic and geologic features. Although heavily vandalized, Painted Rock is one of the best examples of Native American pictograph rock art open to public viewing. In addition to Painted Rock and other pictograph sites, other significant Native American features occur on the Carrizo. Many of these sites, due to their relatively unknown and inaccessible nature, have remained undisturbed. Other sites, however, were inadvertently damaged by cultivation, or other human activities while in private ownership.

The Carrizo Plain was formed as a result of movement on the San Andreas Fault. Within the Carrizo Plain, geomorphic features characteristic of the fault are exceptionally well displayed. The fault here is often depicted in textbooks and studied by geology students and professionals. The U.S. Geological Survey continues to study the fault to obtain data relating to seismic activity.

The San Andreas Fault represents the boundary between the Pacific Plate (on the west) which moves northwestward relative to the North American Plate on the east. The San Andreas Fault system is more than 800 miles long, and consists of a complex zone of crushed and broken rock from a few hundred feet to more than a mile wide.

At Wallace Creek, the San Andreas fault offset the channel of this ephemeral drainage 430 feet (130 m). It is estimated that over a period of 3,700 years this offset was formed by fault movement and successive earthquakes. Immediately to the south, minor gullies were offset about 33 feet (10 m) by the great Fort Tejon earthquake of 1857. During this earthquake the surface along the fault ruptured from Cholame on State Highway 46 nearly to Cajon Pass, a distance of about 190 miles (300 km).

Portions of this ACEC lie within the Cuyama Basin which is considered to have high potential for the occurrence of oil and gas, the remainder of the area has moderate potential (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario).

Non-marine sedimentary units, probably of Pleistocene age occur within the Carrizo Plain. These units, namely the Paso Robles and Quatal Formations contain beds and lenses of gypsum. Mining for gypsum as recently as 25 years ago, occurred mostly north of the proposed ACEC, although some mining may have occurred on private land within the ACEC boundary. Gypsum is an agricultural soil amendment which is used extensively in the San Joaquin Valley. There is high potential for the occurrence of gypsum deposits within the Carrizo Plain.

Sand and gravel is intermittently mined for local road surfacing uses from private lands within the boundaries of the Carrizo Plain ACEC. Areas within 50 feet of county roads are used as a source of material to fill wash-outs. Additional borrow sites for fill material will be developed as needed.

The Carrizo Plain is a structural depression, an area of interior drainage, which has resulted in the formation of Soda Lake. Soda Lake covers an area of about 3,000 acres. In the 1880s the saline deposits at Soda Lake were mined for use at nearby cattle ranches. Prior to 1908, the Carisa Chemical Company invested $60,000 for a plant and narrow-gauge railroad on the lakebed for the extraction of sodium sulphate. Between 1923 and 1925 an operation was active, and the product was hauled to McKittrick by truck. In 1934 the plant was moved from the south side of the lake to the north and a small amount of mineral was produced.

In 1912, Hoyt Gale, with the U. S. Geological Survey, estimated that Soda Lake contained reserves of over a million tons of sodium sulphate. The BLM has classified Soda Lake prospectively valuable for sodium. Sodium sulphate is used primarily in the production of

kraft paper. In California today, sodium sulphate is recovered from Searles Lake. Portions of the proposed ACEC within the Temblor Range are considered to have moderate potential for phosphate.

The Carrizo Plain has long been recognized as a unique area to visit. Soda Lake, one of California's largest undisturbed alkali wetlands, has drawn birdwatchers from all over the country to watch the winter gathering of several thousand lesser sandhill cranes, long-billed curlews and other shore birds. The Painted Rock cultural site has been a popular point of attraction for visitors from around the world. Recent articles by newspapers, Sunset Magazine, The Audubon Society, Sierra Club and promotions by The Nature Conservancy and the Bureau have created new public interest for visitation.

Existing sources of adverse impacts include off road vehicle travel, unauthorized livestock grazing and vandalism to cultural sites and pictographs. Other potential incompatible uses include indiscriminate camping, heavy visitation at sensitive locations of cultural and biologic resources and intensive development of facilities. With the Los Angeles, San Joaquin Valley and Central Coast population centers within three hours of the area, visitor use is expected to increase. Without special management attention, visitor related impacts are also expected to increase.

Compatible uses for the area include, hiking, mountain bike use on designated routes of travel, equestrian use, hunting, camping in designated locations, birdwatching, photography and nature study.

Actions recommended to safeguard resources include: limit motorized vehicles to designated routes, restrict camping to designated locations, and make use of existing disturbed areas for new facilities. To promote compatible uses, guided tours and brochures should be developed, signs installed, and a visitor center established.

Legislation has been introduced to designate the area as a National Conservation Area, and the Bureau has designated the area as a Showcase Area. The area encompasses three existing ACEC's that would be incorporated into this designation: Soda Lake, Elkhorn Plain and San Andreas Fault Scarp; and portions of two National Cooperative Land and Wildlife Management Areas: Temblor and Caliente. The area is adjacent to the Caliente Mountain WSA and includes Soda Lake, which is eligible to be studied for inclusion within the Wild and Scenic River System. These existing or proposed designations are all compatible with the proposed ACEC designation for the entire area.

Existing authorizations include several livestock grazing leases. The Nature Conservancy, as part of a grazing research project, holds eight of these grazing leases. Grazing on the Nature Conservancy leases is designed to determine whether livestock grazing can be used as a tool to enhance habitat for plant and animal species. The two remaining grazing leases have also been evaluated for compatibility with the area's objectives and initial steps for compatibility have been undertaken. A major trans-continental communication cable and several transmission lines currently exist in the area. Several miles of county road also traverse the unit. Sixty oil and gas leases have been issued in the area, but based on the Reasonably Foreseeable Development scenario (Appendix G-2) for oil and gas development, it is unlikely that any of these will be developed. There are no currently active mining claims in the area. Mining for gypsum, however, has occurred as recently as 25 years ago, mostly north of the proposed ACEC. There is high potential for gypsum deposits to occur in the area. Sand and gravel is intermittently mined for local road surfacing uses from private and state lands. In the 1880s the saline deposits at Soda Lake were mined for use at nearby cattle ranches. Between 1923 and 1925 the Carisa Chemical Company operated an active operation for the extraction of sodium sulfate. Soda Lake has been classified by the Bureau as prospectively valuable for sodium.

Caliente Mountain Range The Caliente Mountain Range includes Caliente Mountain, the highest point in San Luis Obispo County. The area is an ecotone between the southern extent of northern California species and the northern extent of southern California species. The resulting plant and animal assemblages are unique transitions, not only from north to south, but also from the coast to the arid San Joaquin Valley. The area also supports extremely high densities of the oval-leaved snapdragon (FC2/-). The area is relatively undisturbed, although roads, and developments, such as oil and gas fields and radio towers, occur in the area.

This portion of the ACEC lies within the Cuyama Basin which is considered to have high potential for the occurrence of oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario). Three oilfields lie adjacent to the boundary of the ACEC. The Morales Canyon oilfield is situated on the west slope of Caliente Mountain. The field consists of two areas, the Government 18 and the Clayton. Total production prior to 1987 consisted of 2,410,000 barrels of oil. The Taylor Canyon oilfield is located to the northwest, produced about 500,000 barrels of oil, and the Russell Ranch just to the south produced about 67,000,000 barrels of oil prior to 1987.

This portion of the ACEC is also considered to have moderate potential for phosphates.

Off-road vehicle activity has been the primary incompatible activity in the area. Oil and gas development within the more rugged portions of the area, where access would require construction of new roads and terracing would be required for pads, would also be incompatible. Compatible uses include hunting, mountain biking on designated routes, nature study, and continued operation of the existing oil fields and other developments.

To safeguard resources, motor vehicles should be limited to designated routes and seasonal access restrictions may be applied.

A portion of this area is within the Caliente Mountain WSA, which was recommended as unsuitable for wilderness designation. The area is also within the Caliente National Cooperative Land and Wildlife Management Area.

There are two existing grazing leases. There are no mining claims, and ten oil and gas leases have been issued for the area.

Designation of the entire Carrizo area as an ONA/ACEC, to include the three existing ACEC's, and the Caliente Mountain Range, would allow for the special management attention needed to preserve resource values while still allowing compatible public uses. This area meets the relevance and importance criteria and its consideration as an ACEC is warranted.

Chico Martinez

A Research Natural Area (RNA) was designated in the Chico Martinez area with the adoption of the Coast/Valley RMP. It was called the Reef Ridge RNA/ACEC. It is recommended that the name of this ACEC be changed to the Chico Martinez ACEC due to potential confusion with Reef Ridge which occurs in Kings County. The legal description of the RNA was published September 28, 1984 in the Federal Register (49 FR 38368). The RNA encompasses 1,430 acres. An expanded area of up to 3,200 acres of public land and 1,400 acres of reserved mineral estate is being considered for designation. It is recommended that all of the public land in Section 7 (about 325 acres) be dropped from the ACEC due to their lack of significant values. Lands which encompass Carneros Rocks have been identified as potentially suitable for acquisition based on cultural resource values.

The Chico Martinez ACEC is located along Chico Martinez and Carneros Creeks about 20 miles west of Buttonwillow and 12 miles northeast of McKittrick on the east slope of the Temblor Range.

The well exposed rock outcrops here facilitate

the study of geology and stratigraphy. The area is frequently a subject of school and professional society field trips. The area is the type location for the Zemorrian Stage and for a number of members of geologic formations, including the following: within the Monterey Shale, the Gould Shale member and the reference section of the McLure Shale member; within the Temblor Formation the Button bed member, the Carneros Sandstone member and the Phacoides sand member. Some of the geologic units found here produce oil and gas in other locations.

The transition between opal A - opal ct and quartz is exposed within siliceous sediments of the Monterey Shale. Also exposed is the transition between Cretaceous Panoche Formation, Lower Tertiary Point of Rocks Sandstone and Kreyenhagen Shale, Middle Tertiary Temblor Formation and Monterey Shale and Quaternary Tulare Formation. Also found here are such geologic oddities such as 10 inch diameter concretions and sandstone (clastic) dikes which have been faulted.

A small creek originates at Carneros Spring, at the base of the Carneros rocks. The spring and natural caves were used by travelers along the early California trail from San Pedro to East Oakland. Native Americans, sheepmen, cattlemen, and wild horses used this spring. Stories describe outlaw bands in the days of Joaquin Murietta as using Carneros rocks as a rendezvous place.

The ACEC provides habitat for the blunt nosed-leopard lizard, the San Joaquin kit fox and the prairie falcon.

This area was heavily impacted prior to the mid-1960s by gypsite mining. Most of this mining was restricted to the upper Tertiary / Quaternary Tulare Formation, outside of the RNA. However, in the early 1960s this area was also prospected for phosphates, but was abandoned due to low concentrations. The base of the Temblor Formation is phosphatic; these are the same rocks which define the type area for the Zemorrian Stage. Also, several wildcat oil wells have been drilled within the area resulting in surface disturbance associated with road and pad construction.

Portions of this ACEC lie within the San Joaquin Valley which is considered to have high potential for the occurrence of oil and gas, the remainder has moderate potential (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario).

Compatible uses include sight-seeing, camping, cattle grazing, and geophysical surveys. Incompatible uses include off-highway vehicle use, and mining. By paying careful attention to avoiding areas with high resource values, rights-of-way and even limited oil and gas development may be compatible. The area continues to meet the relevance and importance criteria, and RNA/ACEC designation continues to be warranted. The area should be expanded to better protect important geologic and stratigraphic examples.

Elkhorn Plain

This existing ACEC includes 9,190 acres of public land in southeastern San Luis Obispo County. The area is located nine air miles west of Taft and ten air miles south of Derby Acres. This existing ACEC includes public land in T. 31 S., R. 21 E., and T. 32 S., R. 22 E., MDB&M.

The Elkhorn Plain ACEC provides habitat for the State listed San Joaquin antelope squirrel (FC2/CT), and the State and Federally listed San Joaquin kit fox (FE/CT), blunt-nosed leopard lizard (FE/CE) and giant kangaroo rat (FE/CE). A Federally listed plant species, San Joaquin wooly threads (FT/-) occurs in the area. Several candidate plant and animal species, short-nosed kangaroo rat (FC2/-), mountain plover (FC2/-), ferruginous hawk (FC2/-), forked fiddleneck (FC2/-), cotton-flowered buckwheat (FC3C/-) and hollisteria (FC2/-), also occur in the ACEC. The area is recent habitat for the State and Federally listed California condor (FE/CE).

The ACEC was designated with the adoption of the Coast/Valley RMP in September 1984.

The California Department of Fish and Game has designated a 160-acre parcel of adjacent State land as the Elkhorn Plain Ecological Reserve. A cooperative interagency plan was completed for the ACEC and the Ecological Reserve in 1988.

This ACEC lies within the Cuyama Basin which is considered to have high potential for the occurrence of oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario).

Although the area supports some of the highest populations of listed species, severe livestock grazing has reduced vegetative cover and led to severe erosion. Off-road vehicle travel has also been an unauthorized activity of concern. Additional incompatible uses include extensive geophysical exploration, off-road mountain biking, concentrated recreational activities, and mineral material extraction. Research, bird watching, hunting and mountain biking on designated routes are examples of compatible activities.

To safeguard resources, motorized vehicles should be limited to designated routes and camping limited to designated locations.

The ACEC is included within the Temblor National Cooperative Land and Wildlife Management Area.

The two existing livestock grazing leases will be continued. The are no active mining claims. No oil and gas leases have been issued for the area.

This area continues to meet the relevance and importance criteria and ACEC designation continues to be warranted. This ACEC should be considered for retention or for absorption into the Carrizo Plain ACEC, due to its geographic location and similar resource values.

Goose Lake

The Goose Lake ACEC was established in September 1984 (FR 49(190):3868). It borders the Goose Lake Bed in the San Joaquin Valley, Kern County, California. This 40 acre parcel of public land is 6 miles southeast of the intersection of Interstate 5 and State Route 46, and 13.25 miles west of Wasco in T. 27 S., R. 22 E., Section 14 NE¼ NE¼ MDB&M.

The ACEC contains an example of valley saltbush scrub (Holland 1986), a plant community which has largely been extirpated from the Central Valley. This community, dominated by iodine bush, is in good to excellent condition in the north half of the parcel, while many shrubs in the south half have died, perhaps due to extended periods of flooding. The area has low potential for blunt-nosed leopard lizard (FE/CE) and San Joaquin kit fox (FE/CT), but moderate potential for Tipton kangaroo rat (FE/CE). More inventories are needed to adequately characterize the flora and fauna of the ACEC.

Many species of birds utilize the parcel and surrounding evaporation ponds and fields throughout the year. The northern harrier (-/CSC) nests in the vicinity as do a number of shorebirds such as American avocet, black-necked stilt, and western snowy plover (FC2/CSC). These species once occupied similar wetlands throughout the southern San Joaquin Valley. Raptors which utilize the area in winter and during migration include the red-tailed hawk, ferruginous hawk (FC2/CSC), Swainson's hawk (FC3C/CT), American kestrel, Merlin (-/CSC), and prairie falcon (-/CSC). Numerous species of ducks winter here as well as lesser and greater (-/CT) sandhill cranes.

The Goose Lake ACEC also exhibits a National Register quality archaeological site. Few such cultural sites remain in the Central Valley.

This ACEC lies within the San Joaquin Valley which is considered to have high potential for the occurrence of oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario). However, it lies atop a northwest trending downward folded or synclinal suite of sediments of the Great Valley sequence. This area is well east of the San Andreas Fault. Synclines are poor prospects

for oil and gas because both will float on water; therefore oil and gas are found in upwarps or anticlines. Oil production is nearby to the west in the Lost Hills and Belridge anticlines, and to the east in the broad gentle upward flexures of Trico. These anticlinal areas are beyond the Goose Lake ACEC boundaries.

The ACEC is currently managed under the Goose Lake ACEC plan. Many of the objectives and recommendations have been implemented. One recommendation made in the ACEC plan was to increase the area of the ACEC, through acquisition, to include to the relatively undisturbed habitat to the east of the public parcel (120 additional acres).

Goose Lake ACEC is closed to grazing. There is currently one land use permit that is converting to a right-of-way authorization. There are no mining claims or oil and gas leases within the ACEC.

Incompatible uses include any surface disturbing activities, off road vehicle use, and burning. Many of these threats have been reduced through implementation of the ACEC plan. Compatible uses include hiking, birdwatching, nature study and photography, and archaeological and ecological research. This area continues to meet the relevance and importance criteria for an RNA/ACEC.

Kettleman Hills

The proposed Kettleman Hills ACEC encompasses 6,680 acres of public land and 2,680 acres of reserved mineral estate just west of Kettleman City in Kings County. Rock formations exposed in the Kettleman Hills range in age from Pleistocene to Eocene. In these formations invertebrate marine fossils are abundant. However, marine and terrestrial vertebrate fossils are also found. The fossils identified from the area include mastodon, beaver, peccary, horse, camel, deer, sea lion, seal, porpoise, shale, turtle, shark and cormorant. The area is also habitat for four Federally listed species: the San Joaquin kit fox, blunt-nosed leopard lizard, San Joaquin woolly-threads, and Hoover's woolly-star.

Oil was first successfully produced here in 1928, and has since produced over 440 million barrels of oil from Eocene, Oligocene, and Miocene reservoirs. Oil related development has heavily impacted the area, with surface disturbance associated with roads, pads and pipelines. There has also been some mining of clay and gypsite from the area, but not from the fossiliferous sedimentary rocks. The Kettleman Hills oil field presently yields little oil, and Chevron has been actively removing unused equipment from the area. The rich fossiliferous formations are susceptible to destruction from surface disturbing activity.

Incompatible uses include off-highway vehicle use. Numerous existing authorizations, including rights-of-way, oil and gas leases, and grazing leases occur here. The existing authorizations are primarily oil field related. Designation as an ACEC would provide management necessary to coordinate and minimize surface disturbing activities. For the reasons noted above this ONA/ACEC meets to relevance and importance criteria, and should be considered further for designation.

Lokern

This proposed ACEC includes 3,040 acres of Federal surface and subsurface, and 3,400 acres of Federal subsurface only, in central Kern County. The area is located eight air miles west of Buttonwillow and five miles north of McKittrick. The proposed ACEC includes lands within T. 29 S., R. 22 E. and 23 E.; T. 30 S., R. 22 E. and 23 E., MDB&M. The West Side Canal, State Highway 33 and Lokern Road bound the area.

This large undeveloped area is home to exceedingly high population levels of the State listed San Joaquin antelope squirrel (FC2/CT) and the State and Federally listed San Joaquin kit fox (FE/CT), blunt-nosed leopard lizard (FE/CE), giant kangaroo rat (FE/CE) and Tipton kangaroo rat (FE/CE). The Lokern area also contains virtually all populations of the Federally listed Kern Mallow (FE/CE). A

second Federally listed plant, Hoover's woolly-star (FT/-), also occurs in the area. In addition, numerous Federal candidate animal species (short-nosed kangaroo rat (FC2/-), San Joaquin pocket mouse (FC2/CSC), long-billed curlew (FC2/CSC), mountain plover (FC2/CSC) and ferruginous hawk (FC2/-)) occur in the area. The area is characterized by open grasslands, patches of saltbush scrub and a dense growth of alkali sink scrub.

The Lokern area has been identified by the U.S. Fish and Wildlife Service and the California Department of Fish and Game for acquisition and management to promote recovery of several State and Federally listed species. The Nature Conservancy has established the Lokern Preserve and is undertaking an active acquisition program to support this objective.

This ACEC lies within the San Joaquin Valley which is considered to have high potential for the occurrence of oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario). However, the proposed ACEC lies in a northwest trending synclinal area which is not considered highly prospective for oil and gas. Some deep wells have been drilled to find Miocene or older oil reservoirs directly to the southwest, but they have not resulted in oil production. Exploration for oil in the area continues as demonstrated by several proposed large scale geophysical exploration projects.

Although the area is remarkably undisturbed, land use in the surrounding area is primarily agriculture and oil production. Activities currently causing adverse impacts include unauthorized sheep grazing, unauthorized rights-of-way, and road maintenance. Other potentially incompatible uses include intensive oil field development, indiscriminate camping, concentrated recreational activities and intensive development of facilities. Compatible uses for the area include research, limited oil field development, and limited mineral material extraction.

To safeguard the resources of concern, fencing and signing of public land will be required. Livestock grazing should not be authorized. Motor vehicle and bicycle use should be restricted to designated routes. The area should be closed to dispersed camping and collection of vegetative materials should require a permit. Surface disturbing activities should be restricted to previously disturbed lands to the maximum extent possible.

Two existing grazing leases occur in the proposed ACEC. One of these leases should be terminated and the second lease should be modified to exclude grazing from that portion of the allotment inside the proposed ACEC. Several rights-of-ways for pipelines, transmission lines and roads occur in the area. Monitoring of these existing authorizations would be required to minimize impacts to resources of concern. A former mineral material sale site occurs within the proposed ACEC. This site is currently revegetated. Several oil and gas leases have been issued for the area, which is adjacent to several major oil fields. There are no active mining claims.

Designation as an ONA/ACEC would provide the special management attention needed to preserve resource values while still allowing compatible uses. This area meets the relevance and importance criteria and consideration as an ACEC is warranted.

Maricopa Tar Pits

The Maricopa Tar Pits are located south of the town of Maricopa. They are seen as small accumulations of tar, aligned along a subsurface fault. Their age is Pleistocene (+/- 40,000 years) to Recent, with tar still oozing out. Unlike the famous La Brea tar pits or the McKittrick tar pits, these apparently do not contain sabre tooth cats (Smilodon). The tar or asphalt is the result of flushing of volatiles away by meteoric water and biodegradation of oil sources, apparently from the Miocene Monterey Formation, at some depth.

After review of this parcel, it was determined that none of the pits occur on public land.

The parcels were then dropped from further consideration.

Mouth of Kern

Located near Sharks Tooth Hill east of Bakersfield on public lands lie the fossil sharks teeth, various bones, and shellfish belonging to the 12 million year old Round Mountain formation. The fossil bearing zone has excellent public access. These resource values are not believed to be threatened, and are adequately protected without needing to increase management emphasis. This is due largely to the fact that this resource is not widely known to the public. Enforcement to prevent the public from removing fossils would be difficult if their presence were to be publicized. Therefore, designation as an ACEC is not recommended.

Reef Ridge

Reef Ridge in western Kings County was considered for ACEC designation, to highlight and protect the tar seeps in Big Tar Canyon, as well as the well-exposed geologic formations along Reef Ridge. (Note: the Reef Ridge ACEC designated in the 1984 Coast Valley RMP has been renamed the Chico Martinez ACEC, to reflect its location.)

There is, however, no BLM administered surface on the ridge or at the tar seeps. For this reason, it is recommended that this area be dropped from further consideration.

San Andreas Fault Scarp

The San Andreas Fault Scarp ACEC is located in southeastern San Luis Obispo County. The area is located about nine air miles west of Taft and ten air miles south of Derby Acres. This ACEC was designated with the adoption of the Coast/Valley RMP in September, 1984. As defined, the ACEC encompasses approximately 1,350 acres of public land.

The Carrizo Plain is the result of movement on the San Andreas Fault. Within the Carrizo Plain, geomorphic features characteristic of the fault are exceptionally well displayed. The fault here is often depicted in textbooks and studied by geology students and professionals. The U.S. Geological Survey continues to study the fault to obtain data relating to seismic activity.

As a result of the January 8, 1857 Fort Tejon earthquake (magnitude greater than 8), numerous stream channels were offset by the San Andreas Fault, some up to 29 feet. Geologists believe that total accumulated displacement from earthquakes and creep is at least 350 miles along the San Andreas fault since it came into being 15 to 20 million years ago. The San Andreas Fault represents the boundary between the Pacific Plate (on the west) which moves northwestward relative to the North American Plate on the east. The San Andreas Fault system is more than 800 miles long, and consists of a complex zone of crushed and broken rock from a few hundred feet to more than a mile wide.

The ACEC provides habitat for the State listed San Joaquin antelope squirrel, and the State and Federally listed San Joaquin kit fox, blunt-nosed leopard lizard and giant kangaroo rat. A Federally listed plant species, San Joaquin wooly threads, occurs in the area. Several candidate plant and animal species (short-nosed kangaroo rat, forked fiddleneck, cotton-flowered buckwheat, hollisteria) also occur here. The area is recent habitat for the State and Federally listed California condor.

This ACEC lies within the Cuyama Basin which is considered to have high potential for the occurrence of oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario).

Incompatible uses of the area include off highway vehicle travel, mining, and indiscriminate scientific trenching. Compatible uses include hiking, photography and cattle grazing. This ACEC continues to meet the relevance and importance criteria and the ACEC designation continues to be warranted. This RNA/ACEC should be designated as a National Natural Landmark and considered for

retention or absorbed into the Carrizo Plain ACEC due to the geographic location and similarity of resources.

Soda Lake

This existing ACEC includes 2970 acres of public land in eastern San Luis Obispo County. The ACEC is located 16 air miles west of Derby Acres and ten air miles southeast of California Valley. This existing ACEC includes public land in T. 31 S., R. 19. E., MDB&M, Sections 1, 2, 11, 12, 13 and 14, and T. 31 S., R. 20 E., MDB&M, Sections 17, 18, 19 and 20.

Soda Lake is one of the largest remaining natural wetlands in lower California. The ACEC includes alkali sink scrub, which provides habitat for the State listed San Joaquin antelope squirrel (FC2/CT), and the State and Federally listed San Joaquin kit fox (FE/CT), blunt-nosed leopard lizard (FE/CE) and giant kangaroo rat (FE/CE). The area also supports several Federal candidate species, including the short-nosed kangaroo rat (FC2/-) and Lost Hills saltbush (FC2/-). During the winter months, thousands of lesser Sandhill cranes use Soda Lake for roosting, resting and feeding. Numerous shorebirds, including mountain plovers (FC2/-), long-billed curlews (FC2/-), American avocets and black-necked stilts make use of the area. Thirteen species of raptors have been observed in the area, including the bald eagle (FE/CE) and American peregrine falcon (FE/CE). Brine shrimp and fairy shrimp occur in Soda Lake and surrounding pools, providing food for wintering species of shorebirds.

This ACEC lies within the Cuyama Basin which is considered to have high potential for the occurrence of oil and gas (see Appendix G-2: Oil and Gas Reasonable Foreseeable Development Scenario).

In the 1880s the saline deposits at Soda Lake were mined for use at nearby cattle ranches. Prior to 1908, the Carisa Chemical Company invested $60,000 for a plant and narrow-gauge railroad on the lakebed for the extraction of sodium sulphate. Between 1923 and 1925 an operation was active, and the product was hauled to McKittrick by truck. In 1934 the plant was moved from the south side of the lake to the north and a small amount of mineral was produced.

The ACEC was designated with the adoption of the Coast/Valley RMP in September 1984. The U.S. Fish and Wildlife Service ranked Soda Lake as fourth in an inventory of California's 49 most unique wildlife ecosystems (USFWS 1978).

Incompatible uses of the area include livestock grazing in the alkali sink, off-road vehicle travel, and any human activity in close proximity to roosting Sandhill cranes. Compatible uses include birdwatching, photography and nature study.

To safeguard resources, the alkali sink habitat should continue to be ungrazed and motor vehicles restricted to designated routes.

No livestock grazing leases have been issued. There are no mining claims, and no oil and gas leases have been issued for the area. Soda Lake has been classified by the Bureau as prospectively valuable for sodium. Two rights of way have been issued for public lands within this ACEC.

Legislation has been introduced to designate the area as part of a National Conservation Area, and the Bureau has included Soda Lake in the area designated as a Showcase Area. Soda Lake is eligible to be studied for inclusion within the Wild and Scenic River System.

This ACEC continues to meet the relevance and importance criteria and RNA/ACEC designation continues to be warranted. This ACEC should be retained or absorbed into the Carrizo Plain ACEC due to the geographic location and similarity of resources.

South Sierra Management Area

Blue Ridge

This existing ACEC contains 3175 acres of public land in central Tulare County. The ACEC is nine air miles north of Springville and 12 air miles south of Three Rivers. The ACEC includes lands within T. 19 S., R. 29 E., MDB&M Sections 5, 6, 7, 8, 15, 18, 19, 20, 21, 28 and 29. This ACEC includes all Bureau managed public lands within the Blue Ridge Critical Condor Habitat Zone, designated by the U.S. Fish and Wildlife Service in 1976. An expanded area encompassing 20 additional acres of public land has been proposed for consideration.

Blue Ridge has been an important California condor roost location close to nesting and foraging areas. Both the historic record and recent surveys by the National Audubon Society, the Condor Research Center, California Department of Fish and Game, and the Bureau confirmed frequent use by condors from June through August. It is also suspected that periodic use of the roost occurred throughout the rest of the year. California condors were released back into the wild in January 1992.

The ACEC was designated with the adoption of the South Sierra Foothills Management Framework Plan in August 1984. In addition to the Bureau managed ACEC, the U.S. Fish and Wildlife Service manages 897 acres as the Blue Ridge National Wildlife Refuge, and the California Department of Fish and Game manages 596 acres as the Blue Ridge Ecological Reserve. In 1985, an interagency Blue Ridge Habitat Management Plan was completed for the lands within the Blue Ridge Critical Condor Habitat Zone.

The Blue Ridge Critical Condor Area remains relatively unchanged since condors were last documented using the area in 1985. The primary roost trees utilized by condors in the past remain standing. There is, however, concern that when these preferred snags are no longer usable, suitable replacement roosts will not be available. Complicating management, the area is an intermix of public (Federal and State) and private lands, and these primary roost trees are located on private lands.

A variety of human uses has the potential to conflict with future condor use. Potentially incompatible uses include vehicle use of nearby roads, seasonal and permanent family dwellings, communication tower operation, hunting, sight-seeing and intensive mineral development.

To safeguard the critical condor habitat, the area should remain closed to public vehicle use, and public access should be restricted during condor use periods.

The proposed Blue Ridge ACEC is entirely underlain by granitic rocks. There are no known locatable mineral mines or prospects within this area.

No livestock grazing leases have been authorized for the area, nor have any oil and gas leases been issued. No Bureau rights-of-way have been authorized within the area, although numerous structures, including radio and microwave towers exist on private and State lands within the area. The Blue Ridge area is entirely underlain by granitic rocks. There are no known locatable mineral mines or prospects in the area.

Until such time as the Critical Condor Habitat designation is removed by the U.S. Fish and Wildlife Service, the area will continue to meet the relevance and importance criteria and continued designation an RNA/ACEC is warranted.

Case Mountain

The proposed Case Mountain ACEC consists of 5,655 acres of public land located near Sequoia National Park. The area in general is located six miles east of Three Rivers, California. There is no public access to the Case Mountain area. Giant Sequoias grow in three separate groves located on public lands

at Case Mountain. Approximately 79 sequoias range from 80" diameter at breast height (DBH) upwards to 192" diameter DBH. These groves have never been logged and are currently in excellent condition. Periodic fires have kept the mixed conifer component of the groves at levels where fire can be only considered as a moderate hazard to the sequoias. Logging of several other sequoia groves occurred on the private inholdings during the 1950's. The mixed conifer stands are generally healthy and consist of incense cedar, Jeffrey pine, ponderosa pine, sugar pine, white fir and California nutmeg.

Southern spotted owls and pileated woodpeckers have been observed in the mixed conifer and sequoia groves. Large portions of Case Mountain are unroaded and the habitat is in excellent condition for the habitation of the two species.

Two plant species, Kaweah brodiaea, (Federal Candidate 1) and sequoia gooseberry, (State listed) are found growing in the Case Mountain area. Several hundred acres of suitable habitat exist for both these plants.

The proposed Case Mountain ACEC is entirely underlain by granitic rocks. There are no known mines within the area, however there are prospects for uranium, feldspar and tungsten. The potential for economic development of these minerals is considered low.

There are no oil and gas leases on these parcels. Livestock do graze the area. Recreational use is currently minimal, due to limited access.

Threats to these resource values may arise from increased recreation use, livestock grazing, fire management, and land use authorizations.

The Case Mountain area meets the relevance and importance criteria, and therefore consideration as an ONA/ACEC is warranted.

Chimney Peak/Lamont Meadow

This proposed ACEC encompasses approximately 40,150 acres of public land, including mineral estate, and 1260 acres of mineral estate in Tulare County approximately 20 miles northeast of Lake Isabella, in T. 23 S., R. 35 and 36 E.; and T. 24 S., R. 35, 36, and 37 E., MDB&M.

The potential ACEC, located in the southern Sierra Nevada mountain range, contains many significant scenic, recreational, wildlife, sensitive plant, and cultural features.

The area includes a portion of Chimney Creek which has been determined eligible for inclusion in the National Wild and Scenic Rivers System with a preliminary classification as "Wild" and "Recreational". This corridor has not yet been recommended for inclusion to the U.S. Congress, pending an assessment of suitability for designation. The corridor was also given a scenic quality rating of "A" and is classified as VRM Class II and III.

Portions of the Canebrake Road and the entire Long Valley Loop Road are contained within this area. These roads are proposed as suitable for National Scenic Byway status. The area also contains portions of three WSAs: Sacatar, Owens, and Rockhouse Basin. Portions of the Rockhouse Basin WSA have been recommended to the U.S. Congress as suitable for Wilderness designation.

The Pacific Crest National Scenic Trail (PCNST) meanders throughout the proposed ACEC with several easy access points and many scenic vistas. BLM has two developed campgrounds in the proposed ACEC; Long Valley and Chimney Creek campgrounds. All of these features contribute to the significant recreational and scenic attraction of the proposed ACEC for camping, hiking and hunting.

The riparian vegetation in the proposed ACEC is very unique and important. Drainages are primarily vegetated by willow thickets or wet meadows which pass through a great diversity

of habitats. Higher elevations contain willow thickets which are in excellent condition and upon which the Willow Flycatcher, a State threatened and Federal candidate species, is dependent. Few areas have as large a population of flycatchers as this one. Habitats at higher elevations are also extremely important for mule deer fawning, migration and wintering. This area falls within the Monache-Walker Pass National Cooperative Land and Wildlife Management Area (NCLWMA).

There are four known and extant populations of nine mile canyon phacelia, a Federal C2 candidate plant species, in the proposed ACEC. Also known as Nine Mile Canyon Phacelia, it is found in Pinyon/Juniper and Jeffrey pine habitats. Some of these populations have known impacts from livestock grazing.

This area was ethnographically claimed by the Tubatulabal cultural group and is recognized for its high cultural resource sensitivity. There are many recorded prehistoric sites within the proposed ACEC which are sensitive to impacts from livestock grazing, vandalism, and recreational development. Pinyon nut gathering is a traditional activity which still occurs in the proposed ACEC.

Mesozoic granitic rocks have intruded pre-Cretaceous sediments resulting in pendants of metasedimentary rocks. One large pendant extends from Lamont Meadow on the southeast to the northwest across the entire ACEC. In the north central part of the ACEC within this pendant there is a three mile long series of discontinuous barite lenses. These lenses range from one foot to nearly seventy feet wide. Barite was produced from these lenses by open pits and underground workings at no less than eight mines or prospects. Barite mineralization probably continues at depth along this series of lenses. The area has high potential for the occurrence of barite. Also in the north central part of the ACEC a broad area within the pendant where there are small lenses of barite. This area has moderate potential for barite. In the northwestern corner of the ACEC there are two past producers of tungsten, the Do-good and Kern Sierra mines. Tungsten also was produced from the Western #1 situated about two miles southwest of Chimney Peak. Barite is associated with the tungsten at this mine. This mine has moderate potential for tungsten and high potential for barite. The other two past productive tungsten mines have high potential for the occurrence of tungsten. Along the contact of the metasedimentary rocks and granitic rock in the northwest corner of the ACEC there is moderate potential for tungsten. Turquoise occurs at two locations about one half mile east of the Long Valley Campground. The prospect on the north has moderate potential, the prospect on the south has high potential for turquoise. The area from these prospects to the USFS boundary has low potential for turquoise. The entire northwestern part of the ACEC has low potential for the occurrence of silver, gold, copper, lead or zinc. Based on drainage sediment samples, the southwest corner of the ACEC has potential for silver, arsenic, lead and antimony. Based on drainage sediment samples, the northeast quarter of Section 21 T. 24 S., R. 36 E. has low potential for tungsten and molybdenum. East of Lamont Meadow in Sections 29 and 30 T. 24 S., R. 37 E. there is low potential for tungsten, copper and barite. At the White Cross prospect situated in the NE¼ Sec. 27 T. 24 S., R. 36 E. there are measured reserves of 5,000 tons of potassium feldspar. Also, along the Canebrake Road about two miles northeast of Lamont Meadow are two borrow pits, sources of either fill or material for surfacing the road during construction.

Existing authorizations include 3 grazing permits, 22 mining claims, various rights-of-way including BLM campgrounds, a fire station, the Pacific Crest National Scenic Trail and a right-of-way for the county road which is on acquired land. There are also several range improvements including fences and spring developments. A portion of the ACEC is proposed for exchange. Also, portions are within withdrawals for a NCLWMA and a Grazing District, and easements for two roads area present. These uses can be compatible

to ACEC objectives if managed to avoid the sensitive riparian areas, sensitive plant populations, cultural sites, and minimize general surface disturbances. Threats to these resources include unauthorized uses and unrestricted recreational uses.

Protection of riparian habitat, sensitive plant populations, and sensitive cultural sites could be accomplished with fencing, seasonal use restrictions and increased patrol activity. The proposed ACEC has received much management attention in prior years and is included in the Walker Pass Coordinated Resource Management Plan (CRMP). The many special values of this area, meet the relevance and importance criteria for designation as an ONA/ACEC. The need for additional special management is questionable, but consideration as an ACEC is nonetheless warranted.

Deer Spring

This proposed ACEC consists of a 320 acre portion of public land located in southeastern Tulare County, California. The proposed ACEC is 36 miles northeast of Lake Isabella, and 34.5 miles northwest of Ridgecrest (T. 22 S. R. 37 E. Section 31 S½).

This proposed ACEC includes Deer Spring and most of its upstream watershed. The upland portion is vegetated by a mature stand of Great Basin pinyon woodland (Holland 1986) which is intermittently interrupted by rock outcrops or canopy openings created by tree mortality. Deer Spring is an example of montane riparian scrub (Holland 1986) dominated by willows with the upstream portion becoming montane meadow (Holland 1986). The meadow portion is dominated by sedges and grass in the wetter portions, and sagebrush and rabbitbrush in the drier sites. The riparian system was damaged in 1989 from a catastrophic flash flood. Without intervention, further damage is likely resulting in the loss of this valuable riparian system.

Deer Spring is located in the migratory corridor of the Monache deer herd. It is also potential habitat for the willow flycatcher (-/CE). Wildlife utilize the riparian zone as well as the uplands. In addition to wildlife values, the vicinity of Deer Spring has also been shown to have archaeological importance.

The ACEC is part of a larger National Cooperative Land and Wildlife Management Area (NCLWMA), established January 26, 1962 by Public Land Order No. 2594, with the objective of encouraging cooperative management of wildlife between the Bureau of Land Management and the California Department of Fish and Game. The ACEC is within the portion of the Sacatar Meadow Wilderness Study Area which was recommended as wilderness.

The proposed Deer Spring ACEC is entirely underlain by Mesozoic granitic rocks. There is no known potential for any locatable minerals.

There are no land use authorizations, oil and gas leases, or mining claims within this proposed ACEC. There is one grazing permit authorized for this area. Uses incompatible with the above resources are: grazing in the riparian zone, unconstrained leasing of solid leasable minerals or disposal of saleable minerals, disposal of the public land, and off road vehicle use. Compatible uses would include grazing in the upland portions of the proposed ACEC, lease and disposal of minerals under major surface disturbance constraints, hunting, photography, birdwatching, and nature study.

Given that the lands shall be retained under public ownership, that the meadow has been fenced to protect it from grazing and off road vehicle use, and that major constraints would be made to any future surface disturbance, adequate protection is being afforded the above resource values. While the area meets the relevance and importance criteria, the resources can be largely protected with the current level of management attention. Consideration of Deer Spring as an ONA/ACEC appears to be marginally warranted at this time.

Erskine Creek

The proposed Erskine Creek ACEC consists of 1,760 acres of public land and 440 acres on Federally reserved mineral estate within T. 27 S., R. 33 E., Sections 9, 14, 15, 16, 17, 20, 21, 22, 23, and 24. The area is approximately three miles southeast of the town of Lake Isabella, and borders the Sequoia National Forest.

All of the proposed ACEC except for Section 24 is within the Monache-Walker Pass National Cooperative Land and Wildlife Management Area (NCLWMA) established on January 26, 1962, by Public Land Order 2594. The NCLWMA is cooperatively managed with the California Department of Fish and Game under current public land laws. This proposed ACEC is also within the Piute Cypress Wilderness Study Area (CA-010-046), which was recommended as unsuitable by the Bureau.

The Valley View Mining District, established in 1865 encompassed the Erskine Creek Area. Intermittent mining activity continued through the 1910s. These early mines were developed for gold, antimony and copper. During the 1950s uranium was discovered and prospected southwest of Laura Peak and southeast of the mouth of Erskine Creek. At this same time tungsten was produced at the Unip mine 1/4 mile northwest of the junction of Willow Gulch and Erskine Creek. Near the head of Spring Gulch tungsten was prospected at the Christmas Tree mine. In the 1970s the Rampors Company explored an area in the SE¼ Sec. 9 and the SW¼ Sec. 10, presumably for gold. During 1980s the Erskine Creek drainage has been prospected for placer gold and garnets. In addition to the above named mines and prospects there are numerous unnamed prospects on public lands within the Erskine Creek drainage.

Within the Bodfish Creek drainage, the Mondora (or Polka Dot) mine, was active in the 1890s. The foundation of a mill standing in the NW¼ Sec. 21 presumably served this mine, and dates from this period. In the 1970s and early 1980s this mine was worked and a mill was constructed about 500 feet south of the old mill site. The mine is now abandoned. There are other prospects just a few tens of feet south of the USFS boundary in Sec. 28 along Bodfish Creek.

The proposed Erskine Creek ACEC has moderate to high potential for gold and tungsten, and low to moderate potential for development of limestone.

The proposed Erskine Creek ACEC is underlain by metasedimentary, metavolcanic and granitic rocks. There are relatively extensive marble/ limestone outcrops in which caves have developed. There are three known caves, each with vertical entrances up to 120 feet deep. Several small chimneys or openings are also known from this vicinity. These are the only the only caves on public land in the Resource Area, and they provide the only vertical caving opportunities in the region.

Vegetative communities include open digger pine woodland, chaparral, Mojavean pinyon woodland, Mojavean desert scrub, and riparian woodland. The riparian area along the creek, which includes sycamores and willows, has sustained numerous impacts from unauthorized activities. The riparian area has high potential for supporting willow flycatchers (-/CE). Many neotropical birds nest and migrate along the drainage. The caves are known to provide habitat for Townsend big-eared bats. In addition, the caves may contain unique cave adapted species, although no inventories have been conducted. The Piute Mountains jewelflower (FC2/-) is known to occur here, and there is a high potential for the Kern Canyon larkspur (CNPS watch list) to occur within this proposed ACEC. The Kern Canyon larkspur is a scarce endemic of a small portion of Kern and Tulare Counties. It usually grows on steep shaded moist rock outcrops. The type was collected at Erskine Creek (Twisselmann 1967).

Evidence of disturbance to the area include check dams, mining settlements, livestock trampling, off road vehicle scars, primitive

campsites, and trash. There are no grazing or oil and gas leases within this proposed ACEC. There are 30 mining claims within the area. Uses that are incompatible with the protection of the resources include mining activities that would result in large areas of surface disturbance or damage to cave features; geothermal leasing; off road vehicle use; disposal of public land; and water diversions. Compatible uses include leasing of solid leasable minerals and disposal of saleable minerals subject to major constraints, hunting, photography, swimming, fishing, and nature study.

Erskine Creek meets the relevance and importance criteria for ACECs. ONA/ACEC designation is warranted to protect the natural resources from further degradation.

Horse Canyon/Sand Canyon

The Horse Canyon/Sand Canyon area encompasses 1,125 acres of public land and 640 acres of subsurface mineral estate located within T. 31 S., R. 34 E., MDB&M, Sec. 25, 26, 34, 35, and 36, MDB&M, T. 32 S., R. 34 E. MDB&M, Sec. 1, 2, and 12.

The proposed ACEC and adjoining vicinity is regarded to be highly sensitive for its cultural resource property values and the traditional cultural and religious values the Native Americans place upon this area. Within and contiguous to the ACEC there are seventeen (17) prehistoric sites and one (1) historic site known on split estate and four (4) prehistoric sites on public land. Typically, sites represented in the ACEC are comprised of food processing features, rock art, agate quarries, lithic flake/tool scatters, rock ring habitation features, aboriginal trails, or a combination of one or more of these site types.

The Horse Canyon/Sand Canyon area lies somewhat at an interface between several Native American groups and may likely yield important information about trade, resource procurement, and prehistoric lifeways. This potential transition zone connecting the desert cultures with the San Joaquin Valley cultural region may reveal important scientific and archaeological information. The area was primarily occupied by the Kawaiisu that were centrally focused in the Walker Basin, Kelso Canyon and Loraine area. The Kitanemuk group inhabited the El Tejon area and the Yokuts were centrally located to the west in the San Joaquin Valley. From the east the Chemehuevi reached the Kawaiisu and the Shoshone were situated to the northeast of the Kawaiisu. The Tubatulabal occupied Kern Valley just north of the Kawaiisu.

Several recorded prehistoric sites of particular significance occur within and adjacent to the Horse Canyon/Sand Canyon vicinity. The "Horse Canyon pictograph site" (CA-KER-93) and "Creation Cave" (CA-KER-508) are significant for their rock art/archaeological values and their traditional cultural and religious values. The extensive village site (CA-KER-230) near Sand Canyon and the ethnographic village site (CA-KER-339) known as "Ma a puts" attest to the importance of this area to Native Californians. Indeed, the area is a significant integral component of a cultural region where little systematic studies have been conducted on public and private land.

Paleontological resource values are known within and adjacent to the area. Phillips Ranch vertebrate fauna locality of the Kinnick Formation is situated on public land in Section 34, T.31S., R.24E. MDB&M (Dibblee 1967, p. 94). Fossil mammalian faunas range in age from early middle Miocene to late Miocene. Primitive fauna of Merychippus (small horses), camels, and antelope-like forms have been revealed in the Kinnick Formation. In addition, from about the same stratigraphic level of Phillips Ranch fauna locality, flora has been found that consist of sixty-nine (69) trees and shrubs assigned to the early Miocene (Savage, 1954, p. 45). "The lower, or Phillips Ranch horizon, appears to represent the oldest stage in the development of mammalian life above the Oligocene known thus far in the region west of the Wasatch". This important data contributes to a better understanding of the history of Mammalia and the geology of the

southern Sierra Nevada and adjacent regions (Buwalda, 1916, p. 86, 76).

Portions of the Bopesta Formation contain Cache Peak vertebrate fossils (late Miocene) from the locality found on the east fork of Cache Creek, adjacent to the proposed ACEC east boundary. Although, the Bopesta formation extends across this site, no fossil bearing horizons of the formation are known or recorded to date within the proposed ACEC.

The unique presence of the Phillips Ranch vertebrate locality in these confines provides high research potential to yield significant information on vertebrate fossils and the history of geologic/fault activity in the region.

The public has expressed concern about the potential adverse impact to cultural resources in the ACEC and vicinity. The potential threats to resource values are primarily from wind energy development/associated facilities, and residential development. Although vandalism to cultural resources is known to occur in the area, overall the resource still possesses high integrity.

The Miocene sedimentary rocks exposed within the proposed ACEC are interbedded with clay and tuff layers. The clay, an alteration product of tuff, also contains zeolites. A high-grade adsorptive bentonite clay was produced from the Filtrol mine located in Sec. 34 T. 31 S., R. 34 E. from 1927 to 1936. The tuff beds also contain abundant veins of jasper. In the N½ Sec. 35 and S½ Sec. 26 the Horse Canyon agate field has yielded agate, in addition to chalcedony, opal, chert, jasper and petrified wood. From the early 1950s until the early 1960s the M and M Mining Company mined a variety of volcanic and sedimentary rocks for roofing granules. Quarries were developed in Sections 32, 33 and 34 T. 31 S., R. 34 E.

Currently, the parcels in the Horse Canyon area are unallotted for grazing. There are no active mining claims (10-16-90) in Sections 2 and 12. Sections 26 and 34 have no mining claims (10-16-90). No land use authorizations exist within the proposed ACEC.

Based upon the value and integrity of the resources, this area is found to meet the relevance and importance necessary for ONA/ACEC designation, and should be considered for designation.

Kernville Hot Springs

The Kernville Hotsprings, situated about two miles southeast of Kernville in Kern County, is a marshy spring-fed area, a part of which occurs on public land administered by the BLM. Water at the springs vary between 98 °F and 113 °F. The area being considered includes 160 acres of public land, and approximately 110 acres of Federally reserved mineral estate.

The Alkali mariposa lily (FC2/-) very likely occurs within this proposed ACEC. A known location for this species occurs just west of the proposed ACEC along a seepage area. This seepage area extends farther to the east and includes Kernville Hotsprings. This plant is rare, occurring in low winter-wet subalkaline places (Twisselmann 1967). Alkali mariposa lily is threatened by drainage, grazing, and urbanization. The Kelso Creek monkeyflower (FC1/-) may also occur within this proposed ACEC. This plant is also very rare and is threatened by development and off road vehicle use.

The area has high potential for geothermal resources. Geology of the area consists of pre-Cretaceous sedimentary rocks which have been intruded early Cretaceous quartz diorite. Formerly productive tungsten mines are situated on this contact just to the north and south of the proposed ACEC. The area has moderate potential for tungsten and other associated locatable minerals.

The area is currently part of a grazing allotment managed as a "Maintain" category allotment. There are 29 mining claims within the proposed ACEC. There is a communication site right-of-way in Section 26, and a power withdrawal in Section 23.

Incompatible uses include grazing in riparian areas and rare plant populations, water diversions, disposal of public land, unconstrained leasing of solid leasable minerals and disposal of saleable minerals, and off road vehicle use. Compatible uses include mineral leasing and disposal of saleable minerals subject to major constraints, hunting, photography, and nature study.

Fencing of sensitive plant locations and/or changing the management category of the grazing allotment to "improve" are possible management actions to protect any sensitive plant colonies that may occur here. The area meets the relevance and importance criteria; it is unknown if the area can be protected with the current level of management attention. Therefore consideration of Kernville Hotsprings as an ONA/ACEC is warranted at this time.

Keyesville Historic Mining Area

This proposed historic mining area/ACEC consists of 7,170 acres of public land in eastern Kern County, southwest of the U.S.F.S. managed Isabella Lake Dam and campgrounds. The area is bounded by Sequoia National Forest to the north and west. To the south lies the resort town of Lake Isabella. Hwy 178 runs along Keyesville's south side while Hwy 155 separates the area on its east from the Lake Isabella Reservoir. Specifically, Keyesville consists of the public land in T. 26 S., R. 32 and 33 E., and T. 27 S., R. 32 E., MDB&M.

Important resources within the Keyesville area are present to warrant ACEC status. Ethnographically, the area was occupied by the Palagewan Tubatulabal Indian group. Historically, Joseph R. Walker, who led one of John C. Fremont's expeditions over Walker Pass in 1834, earned the honor of being the first white American to have entered Kern Valley. In 1851 gold was first discovered on Greenhorn Creek near the Kern River by a exploration party sent out by John C. Fremont. This discovery led to the first Kern River gold rush. Prospectors spread out finding rich placer gold yielding as much as $50 per pan and several lode deposits. The town of Petersburgh near the summit of Greenhorn Mountain was established about 1858 and became an important overnight stop and supply point. The location overlooked Keyesville.

After discovery of placer gold in the Kern River in the spring of 1854 a stampede of miners began to the area. By January 1855 the area was again swarming with miners. But, even before this rush, in 1852, Richard Keys a half-Cherokee '49er discovered lode gold. Soon afterward Captain Maltby discovered the nearby Mammoth mine. Abia T. Lightner constructed the first stamp mill in the area.

The earthen Keyesville Fort was constructed during the Tule River Indian War of 1856 to protect the settlers, but was never utilized.

By 1858 there were five water driven mills with 22 stamps. However, the floods of 1861 - 1862 destroyed them all. The town of Keyesville supported about 50 to 60 people and boasted eight houses, a saloon and crude hotel. A 20-stamp mill was erected in 1865 on the Kern River, but the mill proved inefficient and only ran a short time. After the Euro-Americans had heavily mined the gulches for placer gold, the Chinese arrived to work the sands.

Mines in Keyesville were idle until a 1897 revival. During this time a 5-stamp mill was erected at the Keyes mine and a 10-stamp mill at the Mammoth. Both mines were intermittently active until about World War II. The Keyes mine produced a total of $450,000, the Mammoth about $500,000.

Due primarily to the high cost of underground mining of the relatively small ore bodies, mining has given way to sheep and cattle ranching. Today Keyesville, situated on private land, is little more than a ghost town.

Inventory records indicate at least twenty known cultural resource sites in the confines of the proposed ACEC. Prehistoric site types typically found consist of milling features,

midden deposits, rock shelter, and rock art. Historic resources include placer and hardrock gold mines, the Lightner cabin and cemetery, Keyesville village, and the fort. The Keyesville area played a significant role in the early American western expansion, settlement, and mineral exploitation in California.

The Keyesville Area is entirely underlain by Mesozoic granitic rocks. Small scale underground hard-rock and placer gold mining continues today. For this reason the central part of the Keyesville ACEC is considered to have high potential for gold. Within the last 10 years decomposed granite has also been mined within the boundaries of the proposed ACEC.

Encompassing about 100 acres in the southeastern corner of the proposed ACEC, is an area of high potential for geothermal resources. This area extends from Kernville Hot Springs on the northeast to Democrat Hot Springs on the southwest.

By far the most dramatic natural feature of the parcel is an approximately 3.5-mile stretch of the Lower Kern River Gorge. This important white-water river attracts about 12,000 commercial and non-commercial rafters from all over the USA each year. The river and its tributaries are also used by recreationists for gold panning. Gold mining was and still is an historic use of this site. Several unfenced mine shafts exist and present a significant hazard to recreationists. Another user-imposed hazard to human life and safety is uncontrolled shooting by local recreationists.

Ecologically, the area is classified as blue oak/digger pine and riparian, with no known occurrences of rare or threatened species.

The Keyesville area receives intense recreation usage and public pressure for more and better recreational opportunities. OHV use and public demand for OHV open areas have greatly increased. The area is becoming more popular since OHV opportunities in the desert have been restricted. Keyesville now receives traffic which once went to the desert, and management of these users has become quite difficult. Actual use occurs not only on existing roads but heavily over the entire area, resulting in an unsightly network of destructive trails and ways, in addition to localized areas of total devastation. The recent Pearl Harbor Survivor's Association's Pearl Harbor Memorial Tree Plantation (a barbed wire enclosure of 40 acres planted with pine trees) has stimulated a proliferation of more OHV ways around the fence. Clearly, uncontrolled OHV riding is an incompatible use for the area. Other incompatible uses include target shooting and hunting of small mammals and birds. Abusive shooting has contributed to destruction and unsightly scars to natural trees and shrubs in the area, litter, and presents a safety hazard for recreationists. Recreational mining is permitted in Sec. 25 SE¼, Sec. 36 N1½NE¼, SE¼ , T. 26 S., R. 32 E., MDB&M, areas withdrawn from the general mining laws. However, miners have occupied claims, causing resource degradation.

Camping in the area is limited to 14 days, but is frequently exceeded by transients who occupy the area for long periods and destroy resources, create trash and health hazards, and intimidate other users. The public has created several unofficial campsites in the area. This unregulated use has heavily damaged the area's resources. Vandalism, trash dumping, drug selling and growing, drug and drinking parties, firewood theft and other illegal uses all occur within the Keyesville area.

There are presently three grazing permits within one allotment in the proposed ACEC. Land use authorizations and withdrawals within the proposed Keyesville ACEC include various rights-of-way, lifetime leases, and various power project withdrawals.

These factors have degraded a once lovely oak savannah woodland into VRM Class IV. The exception lies in the lower Kern River Gorge, which is steep and, where inaccessible except by raft, retains its VRM Class II status. The river corridor is managed jointly with the USFS for commercial white-water rafting. BLM maintains two launch sites for these rafting

trips, referred to as "BLM South and Keyesville Bridge".

A relatively recent use of the area has been the interest shown by mountain bicyclists who make use of the county roads and motorcycle tracks. A special recreation-use permit has been issued since 1989 to NORBA for their annual Kern County mountain bicycle race. This use has proven to be positive and compatible. However, minor conflicts do occur with transients and OHV users. Other mountain bicycle events have also requested use of the area.

Actions needed to correct the present situation involve an increased presence by BLM, and basic developments which control use and improve the quality of the area's recreation potential. Law enforcement patrols need to be stepped up, basic sanitary facilities such as toilets and trash removal must be installed to reduce health hazards and litter. Visitor information and interpretation is essential. The area needs to be signed, and have OHV travel restricted.

The present condition presents a difficult management situation. Keyesville has significant recreation potential and historic value, and serious conflicts between compatible and incompatible uses. With the area's proximity to major and growing population centers, its open space and water-based recreation resources will contribute to increased pressure on the land. For these reasons, Keyesville warrants consideration for ONA/ACEC designation.

North Fork of the Kaweah

The proposed North Fork of the Kaweah ACEC consists of 3,440 acres of public land in the southern Sierra Nevada Mountains, approximately 5 miles north of the town of Three Rivers in Tulare County. The North Fork of the Kaweah consists of the public land in T. 16 S., R. 28 E., Secs. 13, 14, 22, 23, 24, 25, and 26, and 34, and T. 17 S., R. 28 E., Secs. 1, 2, 3, and 12, MDB&M.

The proposed ACEC area is bounded by Sequoia National Park to the east, BLM public land to the north, private land to the west and private and BLM lands to the south. A locally-maintained paved road runs through the proposed ACEC, roughly paralleling the North Fork of the Kaweah River. This road provides access for fire emergency vehicles to private and NPS lands further north.

Within the proposed boundaries of the ACEC lies a corridor of the North Fork of the Kaweah River, a river currently being considered for Wild and Scenic River suitability study, and portions of the Sheep Ridge and Milk Ranch/Case Mountain WSAs. Both WSAs have been recommended as unsuitable for wilderness. The North Fork of the Kaweah Special Recreation Management Area falls within the proposed ACEC boundary.

Within this proposed ACEC there are extensive pendants of metasedimentary rocks, including extensive outcrops of marble. There is one known tungsten prospect. The ACEC has low to moderate potential for the occurrence of tungsten and associated metals.

The proposed ACEC contains several rights-of-way and three withdrawals. Most of the area is leased for grazing.

The North Fork area contains the Advance Colony site, a part of the Kaweah Colony, a socialist utopian society formed in the 1880's. In 1884 a group of "utopian socialists" established the settlement of Arcady (or Haskell's bluff) in the vicinity of the present day community of Kaweah. In 1886 they established Advance, a construction camp along the North Fork of the Kaweah, to access timber lands about 8 miles to the east. Road construction began about 3 miles to the north of Advance and terminated in untouched forests of sequoia and other conifers. After four years of hand-labor, the road was finished and a lumber mill erected. At this time Sequoia National Park was established and members of the colony were arrested for cutting timber in the Park. By 1892 the settlements were abandoned.

Ecologically, this area is a good example of a low elevation (2000 feet) river drainage originating from South Sierra alpine elevations. Vegetation is a mixture of riparian forest, scattered oaks and grasses, and dense chaparral on the drier, south-facing slopes. Two sensitive plant species, mouse buckwheat (FC2/-) and Kaweah monkeyflower (FC3C/-) are known to occur within the proposed ACEC.

The North Fork of the Kaweah contains important recreational, historical and ecological resources. Land in the Sequoia and Kings Canyon National Parks, southeast of the river is managed as wilderness. The proposed ACEC's topographic variation, rugged, rocky terrain and vegetative variety combine to create areas of seclusion. A rainbow trout fishery exists in the stream. Three accessible areas along BLM's corridor receive high recreational use in the form of non-commercial kayaking, fishing, picnicking, swimming, sunning, dispersed camping and water play. These areas are Cherry Falls, Advance Site and Picnic Site Number 1. Due to the high and increasing visitor use of these areas, the southern California drought and the lack of permanent sanitation facilities and trash collection (two seasonal port-a-potties and trash dumpsters are provided), the water quality of the North Fork of the Kaweah is poor. Coliform and fecal coliform contamination is high, and algae growth and trash are found in the river at high use areas. There are five grazing leases in the ACEC which may also contribute to the problem. Hence, the river corridor warrants protection in order to safeguard the public's welfare and the water supply of the town of Three Rivers. Incompatible recreational uses for the area include access to the river corridor via off-highway vehicles, wild and noisy partying, scarring of the area via oversized campfires, too many fire rings and generally unruly behavior. The closure of the area to dispersed camping (i.e. providing for a day-use area only), and the erection of signs, picnic sites, permanent sanitation facilities and increased law enforcement patrol are some of the actions needed to safeguard the recreational environment and the ecological resources.

Based upon this information, this location meets the relevance and importance criteria for ACECs. The North Fork of the Kaweah should therefore be considered for ONA/ACEC designation.

Piute Cypress

The Piute Cypress was designated as a BLM Natural Area under Public Land Order 3530. Under existing Bureau policy, Natural Areas are one of several designations that are now managed as ACECs. The 720 acre area was withdrawn from all forms of appropriation under the public land laws, including the mining laws, for the protection of the unique scientific values of the Piute Cypress (Cupressus nevadensis) on January 29, 1965. The Piute Cypress Natural Area included public land in the S½, Section 19, T. 27 S., R. 33 E., MDB&M; SE¼ and E½SW¼, Section 24, and NE¼ and NE¼NW¼, Section 25, T. 27 S., R. 32 E., MDB&M. Under this proposal, an additional 200 acres of Federally reserved mineral estate (Appendix A-2) is also being considered. The area is about two miles south of the town of Bodfish and is accessed by Saddle Springs Road.

These lands are within the Monache-Walker Pass National Cooperative Land and Wildlife Management Area (NCLWMA) established on January 26, 1962, by Public Land Order 2594. The NCLWMA is cooperatively managed with the California Department of Fish and Game under current public land laws.

The Piute Cypress Wilderness Study Area (WSA) (CA-010-046) is directly east of the proposed ACEC. The WSA was recommended as unsuitable because of high potential for development of locatable mineral resources, the need for continued execution of fire management plans, the degree of community adjacent development, and continuance of the Monache-Walker Pass NCLWMA.

The Bodfish grove of Piute cypress extends immediately south into the Sequoia National Forest. The Forest Service classified their

portion of the grove for protective status as a Botanical Area on June 2, 1970. Approximately 70 acres of the grove are privately owned.

The California Native Plant Society (CNPS) placed the Piute Cypress on its List 1B which includes plants that are rare, threatened, and endangered in California and elsewhere. All List 1B plants meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing. The Bodfish grove is the type locality (location from which the species was first described) for the Piute cypress. There are only eleven known groves of Piute cypress which are scattered over the southernmost portion of the Sierra Nevada in Kern County and extreme southern Tulare County. The Bodfish grove is the largest and oldest colony comprising more than 50% of the total known range of the species. Thousands of trees of all ages grow here over a fairly wide area in chaparral and arid Douglas oak woodland.

Associated with the Piute cypress in the Bodfish grove are several other sensitive plant species including Pringles yampah, Piute jewel flower, Piute Mountains navarretia, and Kern River larkspur.

Piute jewel flower is known only from an extensive colony at the north end of the Piute Mountains occupying much the same area as the Bodfish Piute cypress grove. It is a Category 2 Candidate species for Federal listing. Piute Mountains navarretia is a Category 1 Candidate species for Federal listing. It has a small scattered distribution in the west and southwest foothills of the Greenhorn Mountains, the Tehachapi Mountains at Grasshopper Flat, and at the base of the Piute Mountains. All known populations are found in heavy, clay-like soils. Pringle's yampah and Kern River larkspur are both on the CNPS Watch List (List 4-Plants of Limited Distribution). These species are locally endemic to the southern Sierra and are considered rare but not endangered.

Piute cypress is dependent upon fire for regeneration. Stands of Piute cypress are primarily even-aged as a result of fire. Two different age classes exist at the Bodfish grove. The older age class is to the northwest of the young stand and is primarily on BLM land. Because fire is so important to the species, a fire plan to enhance the grove is necessary. Although management of these lands as an ACEC is compatible with wilderness, should this WSA be designated by Congress, management as wilderness would be incompatible with ACEC values. This is due to restrictions on fire management, which could negatively impact Piute Cypress reproduction.

Presently Sections 24 and 25, T. 27 S., R. 32 E., are part of grazing allotment 119, which is managed as a "Custodial" allotment. The Piute cypress grove and the other sensitive plant species would be better managed if this allotment was an "Improve" category allotment. The effect of grazing upon the grove should also be studied.

Geology of the ACEC is characterized by pre-Cretaceous metasedimentary rocks which have been intruded by Cretaceous mafic rocks. The mafic rocks consist of olivine gabbro, gabbro, anorthositic gabbro and dunite which is in part serpentinized. At the contact of these units just south of the ACEC, is located the Tripoli tungsten mine. This contact crosses the ACEC. The area has moderate potential for tungsten and associated locatable minerals. It also has moderate potential for geothermal resources.

This site continues to meet the relevance and importance criteria for ACECs. Consideration for continued designation as an RNA/ACEC is warranted because the area requires special management to protect and enhance the unique botanical resources.

Walker Pass

This proposed ACEC encompasses approximately 30,900 acres of public land, including mineral estate, and 4,400 acres of

mineral estate in eastern Tulare and Kern Counties within T. 24, 25, and 26 S., R. 36 E., T. 24, 25, and 26 S., R. 37 E. and T. 25 S., R. 35 E., MDB&M.

The potential ACEC, located in the southern Sierra Nevada mountain range, contains many significant scenic, recreational, wildlife, sensitive plant and cultural features.

The area includes the lower portion of Chimney Creek, which has been determined eligible for inclusion into the National Wild and Scenic River System with a preliminary classification as "wild" and "recreational". The corridor was also given a scenic quality rating of "A" and is classified as VRM Class II and III. This area also includes Canebrake Creek, which has been determined eligible for inclusion in the National Wild and Scenic Rivers System with a preliminary classification of "Recreational". The corridor was also given a scenic quality rating of "B" and is classified as VRM Class III. Both corridors have yet to be recommended for inclusion by the U.S. Congress, pending an assessment of suitability for designation.

Portions of Canebrake Road are contained within the proposed ACEC. The road is proposed suitable for National Scenic Byway status. The area also contains portions of two WSAs, Owens Peak and Rockhouse Basin, of which portions of both WSAs have been recommended to the U.S. Congress as suitable for wilderness designation.

The Pacific Crest National Scenic Trail (PCNST) meanders through the east side of the proposed ACEC, with several easy access points and many scenic vistas. BLM has one developed campground within the proposed ACEC at the Walker Pass Trailhead to the PCNST. All of these features contribute to the significant recreational and scenic attraction of the proposed ACEC for camping, hiking and hunting.

The riparian vegetation in the proposed ACEC is very unique and important. Drainages are primarily vegetated by willow thickets or wet meadows which pass through a great diversity of habitats. Higher elevations contain willow thickets which are in excellent condition, and upon which the Willow Flycatcher, a State threatened and Federal candidate species is dependent. Few areas have as large a population of Flycatchers as this one. Habitats at higher elevations are also extremely important for mule deer fawning, migration and wintering. This area falls within the Monache-Walker Pass National Cooperative Land and Wildlife Management Area (NCLWMA).

The following plant species are known to occur on public land within the ACEC: Needles buckwheat, a Federal category 3C candidate; Walker Pass milkvetch, a Federal category 2 candidate; and Charlotte's phacelia, a California Native Plant Society list 1B species.

The ACEC contains Walker Pass, which is recognized as a National Historic Landmark. A remnant segment of the old stage run established circa 1870 runs from Canebrake Creek to Canebrake Flat. The area was ethnographically situated at the interface between the Tubatulabal and the Kawaiisu cultural groups. There are several known prehistoric sites within the ACEC, some of which could be eligible for the National Register of Historic Places.

The geology of this area is similar to the proposed Chimney Peak/ Lamont Meadow ACEC. Roof pendants of metasedimentary rocks were intruded and altered by Mesozoic granitic rocks. Currently there is one active mine producing gravel for concrete aggregate from recent alluvium of Canebrake Creek, about one mile northeast of Canebrake. The operation is on both private and U. S. reserved mineral estate. West of State Route 178, near the junction of Canebrake Creek and Three Pines Canyon, the California Department of Transportation (Caltrans) has removed sand and gravel for nearly thirty years. Here as well as areas east of State Route 178, Pleistocene gravels are possible sources of mineral materials. Also, in the past there have been gold placer claims located on this material.

The potential for this resource is undetermined. In Cow Canyon there is a tungsten prospect named the Golden Age. Here there is moderate potential for tungsten, and low potential for copper. Based on drainage sediment samples, Section 10 and portions of Sections 2, 3, and 15, T. 25 S., R. 36 E., have low potential for silver, lead, zinc and antimony. In the northwest portion of the ACEC, the S½ Sec. 7 and N½ Sec. 18 have low potential for lead, antimony and zinc, and the NW¼ Sec. 7 and the E½ Sec. 6 have moderate potential for tungsten and molybdenum, and low potential for barite. Just south of Lamont Peak, encompassing portions of Spanish Needle Creek, the metasedimentary rock has moderate potential for tungsten and low potential for lead.

Existing authorizations include 4 grazing permits, 18 mining claims, apiary site permits, rights-of-way to private residences, various range improvements (such as a windmill, spring developments, and fences), and wildlife guzzlers, and other agency facilities or roads that are maintained regularly.

These uses can be compatible with ACEC objectives if managed to avoid the sensitive riparian areas, sensitive plant populations, and cultural sites, and to minimize general surface disturbances. Threats to these resources include unauthorized activities and unrestricted recreational uses.

Protection of riparian habitat, sensitive plant populations, and sensitive cultural sites could be accomplished with fencing, seasonal use restrictions, and increased patrol activity. The proposed ACEC has received much management attention in prior years and is included in the Walker Pass Coordinated Resource Management Plan (CRMP). It is believed that this area meets the relevance and importance criteria for ACECs. The special values of this area are in need of further protection through designation as an ACEC. Therefore, this area is recommended for designation as the Walker Pass ONA/ACEC.

Appendix A-2 ACEC Descriptions

The Areas of Critical Environmental Concern (ACECs) considered under the various alternatives in this document are shown on Map ___. A more accurate description of each is included in this section. The listings generally describe the Township, Range, and Section (the legal description) of lands within the ACEC. In some cases the boundaries follow natural or man-made features; those features are included in the descriptions. *Although ACEC descriptions may include private lands, the designation is only for public lands and minerals related actions on Federally reserved mineral estate.* Descriptions may include private lands with similar resources; should any of those lands be acquired by the BLM, they will be managed as a part of the ACEC. The Bureau may pursue cooperative management agreements with nearby landowners for the protection or enhancement of those resources.

COAST MANAGEMENT AREA

CALIFORNIA ROCKS AND ISLANDS WILDLIFE SANCTUARY ACEC

The Public Lands encompassed in this ACEC were withdrawn from "settlement, sale, location, or entry, under the general land laws, including the mining laws, 30 U. S. C. Ch. 2, and from leasing under the mineral leasing laws..." on April 19, 1983 (Public Land Order 6369, 48 FR 16684). The ACEC was designated February 15, 1990 (55 FR 5513). That portion of the ACEC covered in this plan includes all unreserved islands, rocks, pinnacles, and reefs off the coast of California in Ventura, Santa Barbara, and San Luis Obispo Counties. (Note: Lion Rock, off Pt. Sal, had a reservation and therefore was omitted from this ACEC. It has been added to the Pt. Sal ACEC for protection.)

CYPRESS MOUNTAIN

Encompassing 1,090 acres of public land within:

T. 27 S., R. 9 E., MDB&M
Secs. 1, 12, 13 All

T. 27 S., R. 10 E., MDB&M
Sec. 7 All
Sec. 8 W½SW¼
Sec. 17 NW¼NW¼
Sec. 18 All

FROG POND MOUNTAIN

Encompassing 53 acres of Federal surface and mineral estate:

T. 28 S., R. 12 E., MDB&M
Sec. 31 Lots 1, 2

IRISH HILLS

Encompassing 1,100 acres of public land and 680 acres of mineral estate within:

T. 31 S., R. 11 E., MDB&M
Secs. 15 - 17 All
Sec. 8 E½, E½W½
Sec. 14 NW¼SW¼
Sec. 18 Lots 1 - 7, E½NE¼
Sec. 20 Lots 1 - 3, N½NE¼
Sec. 21 Lots 1 - 4, N½N½, SW¼NE¼

POINT SAL ACEC

The total acreage of Bureau managed land at Point Sal ACEC is 77.07 acres under all alternatives. Under Alternatives 2, 3, and 5, the boundary is enlarged as described below, to include potential acquisitions: from Mussel Point east to Corralitos Canyon, then following Corralitos Canyon southwest to its intersection with the boundary of the 1860 survey of the Guadalupe Grant line, then due south to the boundary line of Vandenberg Air Force Base, then following the boundary line west to its intersection with the 1867 survey of the Guadalupe Grant line, then south to the north boundary of the Point Sal Beach State Park, following the boundary west and then south to the Ocean, then following the coast line to Mussel Point. The ACEC also includes Lion Rock. Public lands, which constitute the entire ACEC under Alternatives 1 and 4, include:

T. 10 N., R. 36 E., SBB&M
Sec. 34 Lots 7, 8, 9; Lion Rock

RUSTY PEAK

Encompassing 800 acres of public land and 80 acres of mineral estate within:

T. 28 S., R. 11 E., MDB&M
Sec. 29 W½SW¼, SE¼SW¼
Sec. 30 Lots 2 - 4, SE¼NW¼, E½SW¼, SE¼
Sec. 31 NE¼NE¼
Sec. 32 Lots 10 - 17

SALINAS RIVER

Encompassing 1,000 acres of public land and 840 acres of reserved mineral estate within:

T. 29 S., R. 13 E., MDB&M
Sec. 14 SW¼SW¼
Sec. 15 E½
Sec. 22 NE¼
Sec. 23 S½NE¼, NW¼NW¼, S½NW¼, S½
Sec. 24 NW¼NE¼, NW¼, N½SW¼

Sec. 25 S½
Sec. 26 W½NE¼, SE¼NE¼, E½NW¼, N½SE¼, SE¼SE¼
Sec. 36 N½

T. 29 S., R. 14 E., MDB&M
Sec. 31 Lots 1, 2, W½NE¼, E½NW¼

TIERRA REDONDA MOUNTAIN

Encompassing 320 acres of public land and 80 acres of reserved mineral estate:

T. 25 S., R. 9 E., MDB&M
Sec. 2 S½SW¼
Sec. 3 S½SE¼
Sec. 10 NE¼, E½NW¼, E½SW¼, SE¼
Sec. 11 All

VALLEY MANAGEMENT AREA

ALKALI SINK

Encompassing 440 acres of Federal surface and subsurface described as follows:

T. 32 S., R. 26 E., MDB&M
Sec. 8 Lot 1
Sec. 22 S½.

T. 26 S., R. 21 E., MDB&M
Sec. 2 Lot 1 of the NE¼

BITTERCREEK

Encompassing 960 acres of public land and 4,4[illegible] acres of reserved mineral estate

T. 10 N., R. 23 W., SBB&M
Secs. 9, 10, 15 - 17, 19 - 21, 27 - 34 All
Sec. 8 E½, SE¼SW¼
Sec. 18 S½ Lot 2 of SW¼, S½ Lot 1 of SW¼, E½NE¼, SW¼NE¼, SE¼
Sec. 22 N½NE¼, NW¼, W½SW¼, SE¼SW¼
Sec. 26 W½NW¼, SE¼SW¼
Sec. 35 SW¼NE¼, W½, W½SE¼

T. 10 N., R. 24 W., SBB&M
Secs. 15, 16, 23 - 26, 34 - 36 All
Sec. 9 E½SE¼
Sec. 10 W½SW¼, SE¼SW¼, S½SE¼
Sec. 13 SW¼, W½SE¼, S½NE¼SE¼
Sec. 14 S½
Sec. 22 N½, S½SW¼, SE¼
Sec. 27 N½, N½SW¼, SE¼SW¼, SE¼
Sec. 33 W½NE¼, SE¼

BLUE STONE RIDGE

Encompassing 2,570 acres of public land and 2,830 acres of reserved mineral estate within:

T. 25 S., R. 18 E., MDB&M
Sec. 11 E½E½
Sec. 12 S½NE¼, W½NW¼, SE¼NW¼, S½
Sec. 13 All
Sec. 14 E½
Sec. 24 NE¼, E½NW¼, NE¼SW¼, N½SE¼

T. 25 S., R. 17 E., MDB&M
Sec. 14 - 23, 26, 29 All
Sec. 7 N½SW¼, SW¼SW¼
Sec. 8 SE¼SW¼
Sec. 24 W½
Sec. 25 S½NE¼, W½, SE¼
Sec. 27 E½, NW¼, NW¼SW¼
Sec. 28 N½, SW¼SW¼, E½SW¼, W½SE¼, NE¼SE¼
Sec. 29 N½
Sec. 30 Lot 9, NE¼
Sec. 33 NW¼NE¼

BUENA VISTA

Encompasses 20,820 acres of public land and 12,940 acres reserved mineral estate within:

T. 11 N., R. 23 W., SBB&M
Secs. 3 - 10, 15 - 18, 21 - 24, 27 - 28 All
Sec. 19 Lots 1 & 2 of NW¼, NE¼
Sec. 20 N½
Sec. 25 N½
Sec. 26 N½

T. 12 N., R. 23 W., SBB&M
Secs. 29 - 32 All

T. 11 N., R. 24 W., SBB&M
Secs., 1 - 4, 9 - 16, 21 - 28 All

T. 12 N., R. 24 W., SBB&M
Secs. 25 - 29, 33 - 36 All
Sec. 32 NE¼

T. 30 S., R. 22 E., MDB&M
Secs. 22, 25 - 27, 34 - 36 All
Sec. 21 S½S½
Sec. 23 SW¼NE¼, NW¼, S½
Sec. 28 N½, NE¼SW¼, SE¼
Sec. 33 Lots 1 - 8, NE¼, S½SW¼, N½SE¼

T. 31 S., R. 22 E., MDB&M
Secs. 1 - 4, 9 - 16, 21 - 27, 35, 36 All
Sec. 8 E½
Sec. 17 E½
Sec. 20 NE¼
Sec. 28 NE¼
Sec. 34 NE¼

T. 32 S., R. 22 E., MDB&M
Sec. 1 All
Sec. 2 Lots 1 - 6
Sec. 12 NE¼, N½SE¼

T. 30 S., R. 23 E., MDB&M
Sec. 31 All

T. 31 S., R. 23 E., MDB&M
Secs. 5 - 9, 15 - 36 All

T. 32 S., R. 23 E., MDB&M
Secs. 1 - 18, 22 -26, 35, 36 All
Sec. 21 N½, SE¼
Sec. 27 N½, SE¼

T. 31 S., R. 24 E., MDB&M
Secs. 13 - 17, 19 - 23, 26 - 34 All
Secs. 24, 25, 35, 36 those portions west of the California Aqueduct

T. 32 S., R. 24 E., MDB&M
Secs. 2 - 12, 14 - 22, 28 - 34
Sec. 1 those portions west of the California Aqueduct, and south of the meander line of Buena Vista Lake.
Sec. 13 those portions west of California Aqueduct
Sec. 23 N½SW¼
Sec. 24 those portions west of California Aqueduct
Sec. 27 SW¼
Sec. 35 S½

T. 31 S., R. 25 E., MDB&M
Sec. 6 E½
Sec. 7 All
Sec. 8, 9, 17, 18 those portions west of the California Aqueduct

T. 32 S., R. 25 E. MDB&M
Sec. 6 those portions south of the meander line of Buena Vista Lake.

CARRIZO PLAIN - ALTERNATIVES 3 & 4

Encompasses 140,650 acres of public land and 13,200 additional acres of reserved mineral estate within:

T. 30 S., R. 19 E., MDB&M
Sec. 31 Lots 1 and 2 of NW¼, Lots 1 and 2 of SW¼, NW¼NE¼, S½NE¼, SE¼
Sec. 32 S½NW¼, SW¼, SE¼, except that portion conveyed to Dewey E. Werling by deed recorded November 27, 1970, in Book 1595, Page 36 of Official Records
Sec. 33 SW¼SW¼
Sec. 35 All

T. 30 S., R. 20 E., MDB&M
Secs. 9, 10, 15, 16, 21 - 28, 32 - 36, All
Sec. 14 NW¼, S½

T. 30 S., R. 21 E., MDB&M
Sec. 29 SW¼
Sec. 30 Lots 1 - 12, SE¼
Secs. 31, 32 All

T. 31 S., R. 19 E., MDB&M
Secs. 1 - 30, 32 - 36 All
Sec. 31 Lots 1 and 2 of NW¼, NE¼

T. 31 S., R. 20 E., MDB&M
Secs. 1 - 36 All

T. 31 S., R. 21 E., MDB&M
Secs. 4 - 9, 16 - 22, 26 - 36, All
Sec. 10 SW¼
Sec. 15 W½, SE¼
Sec. 23 W½, SE¼
Sec. 25 W½, SE¼

T. 31 S., R. 22 E., MDB&M
Sec. 31 All except NE¼

T. 32 S., R. 19 E., MDB&M
Secs. 1 - 3, 12, 13 All
Sec. 4 Lots 1 - 4, S½NE¼, S½NW¼
Sec. 10 N½
Sec. 11 N½, SE¼
Sec. 14 E½
Sec. 24 N½, SE¼

T. 32 S., R. 20 E., MDB&M*
Secs. 1 - 28, 34 - 36 All
Sec. 29 N½, SE¼
Sec. 33 N½

T. 32 S., R. 21 E., MDB&M
Secs. 1 - 36 All

T. 32 S., R. 22 E., MDB&M
Sec. 4 SW¼
Secs. 5 - 8, 15 - 23, 25 - 36, All
Sec. 9 W½, SE¼
Sec. 10 SW¼
Sec. 14 SW¼
Sec. 24 S½

T. 32 S., R. 23 E., MDB&M
Sec. 30 Lots 1 - 10
Sec. 31 All

T. 10 N., R. 24 W., SBB&M
Secs. 4 - 8, All
Sec. 9 N½, SW¼, W½SE¼
Sec. 17 N½

T. 10 N., R. 25 W., SBB&M
Secs. 1, 2 All
Sec. 3 Lots 1 - 4, S½N½
Sec. 12 Lots 1 - 4, NW¼

T. 11 N., R. 24 W., SBB&M
Sec. 7 Lots 1 - 4, E½W½
Secs. 18, 19, 30 - 33, All

T. 11 N., R. 25 W., SBB&M
Secs. 2 - 36 All
Sec. 1 S½

T. 11 N., R. 26 W., SBB&M*
Secs. 1 - 25, All
Sec. 26 N½
Sec. 36 E½

T. 11 N., R. 27 W., SBB&M*
Secs. 1 - 5, 8 - 16, 24, All
Sec. 6 Lots 1 - 5, S½NE¼,SE¼NW¼

Sec. 17 NE¼
Sec. 21 NE¼
Sec. 22 N½
Sec. 23 N½

T. 12 N., R. 25 W., SBB&M
Secs. 31 - 34, All

T. 12 N., R. 26 W., SBB&M
Secs. 31 - 36, All

T. 12 N., R. 27 W., SBB&M
Secs. 31 - 36, All

T. 12 N., R. 28 W., SBB&M*
Sec. 36 Lots 1, 2, SE¼

*These townships affected in Alternative 2.

CARRIZO PLAIN - ALTERNATIVES 2 & 5 (Modifications to Alternatives 3-4). Those lands described above are included in the ACEC under these alternatives. Additional lands are noted below.

This ACEC encompasses 156,400 acres of public land and 13,200 acres reserved mineral estate, with additional lands in:

T. 32 S., R. 20 E., MDB&M
Secs. 1 - 28, 33 - 36, All
Sec. 29 N½, S½SW¼, SE¼
Sec. 32 Lots 1 and 2; NE¼, NW¼, N½SE¼

T. 10 N., R. 27 W., SBB&M
Sec. 3, Lots 1 - 6; NE¼NE¼

T. 10-1/2 N., R 27 W., SBB&M
Sec. 34 Lots 1 - 4

T. 11 N., R. 26 W., SBB&M
Secs. 1 - 25 All
Sec. 26 N½
Sec. 36 E½

T. 11 N., R. 27 W., SBB&M
Secs. 1 - 18, 20 - 22, 24, 27-29, 32 - 24 All
Sec. 19 Lots 1 - 4 (portions of); E½, E½W½
Sec. 23 N½, SW¼, portions of SE¼
Sec. 26 W½
Sec. 30 Lot 6; E½
Sec. 31 Lots 1 and 2
Sec. 35 NE¼NW¼, W½W½

T. 11 N., R. 28 W., SBB&M
Secs. 1, 12, 13 All
Sec. 2 Lots 1&2;S½NE¼,SE¼
Sec. 11 E½E½
Sec. 14 E½E½

T. 12 N., R. 28 W., SBB&M
Sec. 35 Lots 1&2 (portions of);E½SE¼
Sec. 36 All

CHICO MARTINEZ (Reef Ridge) ACEC

ALTERNATIVE 1

Encompasses 1,430 acres within the following described lands:

T. 29 S., R. 20 E., MDB&M
Sec. 4 Lot 8, E½SW¼, SW¼SW¼
Sec. 7 Lots 3, 4, 7, 8, 9, 14, 15, 16, 17
Sec. 9 NW¼NE¼, E½SE¼
Sec. 10 NE¼, E½NW¼, SW¼NW¼, SW¼, S½SE¼

ALTERNATIVES 2 - 5

Encompasses 3,199 acres of public land and 1,401 acres of reserved mineral estate within:

T. 28 S., R. 20 E., MDB&M
Sec. 32 SW¼SW¼

T. 29 S., R. 20 E., MDB&M
Sec. 3, 4, 5, 8, 9, 10, 11 All
Sec. 2 Lots 4, 5, SW¼NW¼, SW¼, S½SE¼
Sec. 6 Lots 1, 10 - 12, 21 - 24, 65, 66
Sec. 7 Lots 1, 2, 11, 12, SE¼
Sec. 12 N½NE¼, NW¼, SW¼
Sec. 17 N½, N½SW¼, N½SE¼
Sec. 18 NE¼, E½NW¼, NE¼SW¼, N½SE¼

ELKHORN PLAIN ACEC

As defined the ACEC encompasses approximately 9,190 acres of Public Land described as follows:

T. 31 S., R. 21. E., MDB&M
Sec. 7 NE¼
Sec. 8 All
Sec. 17 N½, SW¼
Sec. 18 N½NE¼, SE¼NE¼, NE¼SE¼
Sec. 21 E½
Sec. 22 SW¼
Sec. 27 E½
Sec. 35 N½

T. 32 S., R. 22 E., MDB&M
Sec. 7 Lots 1, 6 - 9, S½ of Lot 2, W½NE¼, SE¼NE¼, S½
Sec. 17 All
Sec. 18 All
Sec. 19 Lots 1, 2, 3, 4, NE¼NE¼
Sec. 20 E½NE¼, W½
Sec. 26 All
Sec. 27 S½NE¼, S½
Sec. 28 W¼NE¼, SE¼NE¼, S½NW¼, SW¼, SE¼
Sec. 29 NE¼, N½NW¼, SE¼NW¼,NE¼SW¼, N½SE¼, SE¼SE¼
Sec. 33 N½, N½SE¼
Sec. 34 All
Sec. 35 W½

GOOSE LAKE ACEC

ALTERNATIVE 1

As defined the ACEC encompasses 40 acres of public land

described as follows:

T. 27 S., R. 22 E., MDB&M
Sec. 14 NE¼NE¼

ALTERNATIVES 2 - 5

T. 27 S., R. 22 E., MDB&M
Sec. 11 S½SE¼
Sec. 13 NW¼, SE¼ portion north of the Goose Lake Canal
Sec. 14 NE¼NE¼
Sec. 25 portion south of Goose Lake meander line
Sec. 26 S½
Sec. 27, 35 portion east of Interstate Highway 5

T. 27 S., T. 23 E., MDB&M
Sec. 18 Lot 1, SE¼SW¼
Sec. 19 portion north of Goose Lake Canal
Sec. 20 S½
Sec. 29 All
Sec. 30 Lots 1, 2
Sec. 31 N½
Sec. 32 All
Sec. 33 W½

KETTLEMAN HILLS - ALTERNATIVE 2

Encompassing 6,720 acres of public land and 5,780 acres of reserved mineral estate within:

T. 21 S., R. 17 E., MDB&M
Sec. 34 (those portions in King's County)

T. 22 S., R. 17 E., MDB&M
Secs. 1 - 3, 10 - 14, 24 All
Secs. 4 & 8 (portions within King's County)
Sec. 23 NE¼, S½

T. 22 S., R. 18 E., MDB&M
Secs. 6 - 8, 17 - 22, 25 - 30, 32 - 36 All

T. 23 S., R. 18 E., MDB&M
Secs. 1 - 3, 11, 12 All
Sec. 4 N½
Sec. 10 N½, SE¼

T. 22 S., R. 19 E., MDB&M
Sec. 31 W½

T. 23 S., R. 19 E., MDB&M
Sec. 5 W½
Secs. 6, 7 ALL

KETTLEMAN HILLS - ALTERNATIVE V

Encompassing 6,680 acres of public land and 2,680 acres of reserved mineral estate within:

T. 21 S., R. 17 E., MDB&M
Sec. 34 (those portions in King's County)

T. 22 S., R. 17 E., MDB&M
Secs. 1-3, 10-14, 24 All
Secs. 4 & 8 (portions within King's County)

T. 22 S., R. 18 E., MDB&M
Secs. 6-8, 17-20, 28-30 All

T. 23 S., R. 18 E., MDB&M
Secs. 2, 11, 12 All
Sec. 4 N½
Sec 10 N½,SE¼

LOKERN

Encompassing 3,040 acres of Federal surface and subsurface and 3,400 acres of reserved mineral estate within:

T. 28 S., R. 22 E. MDB&M
Sec. 21 SW¼ portion west of West Side Canal
Sec. 28 portion west of West Side Canal
Sec. 32 portion east of California Aqueduct
Sec. 33 All
Sec. 34 portion west of West Side Canal

T. 29 S., R. 21 E. MDB&M
Sec. 24 E½

T. 29 S., R. 22 E., MDB&M
Secs. 2, 12 portion west of West Side Canal
Secs. 3, 9 - 11, 13 - 17, 19 - 29, 32 - 36 All
Sec. 4 N½ & N½S½ portions east of California Aqueduct, S½S½
Sec. 30 N½ that portion east of State Route 33, NW¼SE¼, S½SE¼ that portion east of State Route 33.
Sec. 31 NE¼ that portion east of State Route 33

T. 30 S., R. 22 E., MDB&M
Secs. 1 - 4, 10, 11 All
Sec. 5 N½NE¼, SE¼NE¼, E½SE¼
Sec. 8 NE¼
Sec. 9 N½, SE¼

T. 29 S., R. 23 E., MDB&M
Secs. 7, 17, 18, 20, 21, 27, 28, 34, 35, 36 portions west of West Side Canal
Sec. 19, 29 - 33 All

T. 30 S., R. 23 E., MDB&M
Sec. 1 portion west of West Side Canal
Secs. 2 - 7, 9 11 All

T. 30 S., R. 24 E., MDB&M

Sec. 6, 8, 9, 15, 16 portions west of West Side Canal
Sec. 7 All

SAN ANDREAS FAULT SCARP RESEARCH NATURAL AREA (RNA) ACEC

The San Andreas Fault Scarp Research Natural Area (RNA) was designated with the adoption of the Coast/Valley RMP in September, 1984. The legal description was published September 28, 1984 in the Federal Register (49 FR 38367). As defined the RNA encompassed approximately 1,350 acres described as follows:

T. 32 S., R. 22 E., MDB&M
Sec. 19 Lots 1, 2, 3, W½SE¼, SE¼SE¼
Sec. 29 NW¼NW¼, SE¼NW¼, NE¼SW¼, NW¼SE¼, SE¼SE¼
Sec. 33 W½NW¼, SE¼NW¼, N½SE¼
Sec. 34 SW¼SW¼

T. 11 N., R. 25 W., SBB&M
Sec. 6 Lot 5, SW¼SE¼
Sec. 7 NE¼NE¼
Sec. 8 SW¼NW¼, N½SW¼, SE¼SW¼, S½SE¼
Sec. 17 NE¼NE¼
Sec. 22 NE¼SE¼
Sec. 23 W½SW¼
Sec. 26 S½NE¼

SODA LAKE ACEC

As defined the ACEC encompassed approximately 2,970 acres of Public Land described as follows:

T. 31 S., R. 19 E., MDB&M
Sec. 1 W½SW¼, SE¼SW¼
Sec. 2 Lots 3, 4, 5, S½NE¼, NE¼SW¼, SE¼
Sec. 11 N½NE¼, SE¼NE¼, E½SE¼
Sec. 12 W½, SE¼
Sec. 13 All
Sec. 14 NE¼NE¼

T. 31 S., R. 20 E., MDB&M
Sec. 17 W½SW¼
Sec. 18 All
Sec. 19 Lot 3, N½NE¼, SE¼NE¼, NE¼NW¼
Sec. 20 W½NW¼

SOUTH SIERRA MANAGEMENT AREA

BLUE RIDGE ACEC

ALTERNATIVE 1

The Blue Ridge ACEC was designated with the adoption of the South Sierra Foothills Management Framework Plan in August, 1984. The legal description of the ACEC was published February 4, 1985 in the Federal Register (50 FR 4918). As defined the ACEC encompassed approximately 3,175 acres of Public Land described as follows:

T. 19 S., R. 29 E., MDB&M
Sec. 5 Lots 11, 12, 16
Sec. 6 Lot 16,
Sec. 7 Lot 1, SE¼NE¼, NE¼SE¼
Sec. 8 Lots 3, 4, SW¼NE¼, W½W½, W½SE¼
Sec. 15 W½NE¼, NW¼, N½SW¼, N½SE¼SW¼, SW¼SE¼SW¼, N½NW¼SE¼, N½S½NW¼SE¼, S½SW¼NW¼SE¼, W½NW¼SW¼SE¼
Sec. 18 E½,
Sec. 19 NE¼, NE¼SE¼,
Sec. 20 Lots 3, 4, W½W½, SE¼,
Sec. 21 N½NE¼, SW¼SE¼, W½, W½SE¼
Sec. 28 Lots 1, 2, E½NW¼,
Sec. 29 All

ALTERNATIVES 2 - 5

T. 19 S., R. 29 E., MDB&M
Secs. 5 - 9, 15 - 22, 27 - 30 All

CASE MOUNTAIN

Encompassing 5,650 acres of public land as described below:

T. 17S., R.29E., MDB&M
Sec. 13 SE¼SE¼
Sec. 22 All
Sec. 24 W½, S½SE¼
Sec. 25 All
Sec. 26 All
Sec. 27 All
Sec. 33 All
Sec. 34 All
Sec. 35 All
Sec. 36 All
Sec. 42 All
Sec. 43 All
Sec. 44 All
Sec. 45 All

CHIMNEY PEAK

Encompassing approximately 40,150 acres of public land (including mineral estate) and 1,260 acres of reserved mineral estate within:

T. 23 S., R. 35 E., MDB&M
Secs. 25, 36 All

T. 23 S., R. 36 E., MDB&M
Secs. 25 - 36 All

T. 24 S., R. 35 E., MDB&M
Secs. 1, 12, 13, 24, 25, 36 All

T. 24 S., R. 36 E., MDB&M
Secs. 1 - 24, 26 - 34
Sec. 25 Public land north of Lamont Creek
Sec. 35 Public land west of Canebrake road

T. 24 S., R. 37 E., MDB&M
Secs. 5 - 7, 18, 19, 30, 31 All
Secs. 3, 4, 8, 16, 17, 20, 21, 29, 31, 32 Public land north of Lamont Creek and west of the Tulare/Inyo County line.

DEER SPRING

Encompassing 320 acres of public land south of the road within:

T. 22 S., R. 37 E., MDB&M
Sec. 31 those portions west of the county line, and south of road.

ERSKINE CREEK

Encompassing 1,760 acres of public land and 440 acres of reserved mineral estate within:

T. 27 S., R. 33 E., MDB&M

Secs. 9 S½S½
Sec. 14 W½SW¼, SE¼SW¼,
Sec. 15 SW¼NE¼, NW¼, S½
Sec. 16 All
Sec. 17 E½E½NE¼,
Sec. 20 NE¼NE¼
Sec. 21 SW¼NE¼, W½, W½SE¼
Sec. 22 N½NE¼, NE¼NW¼
Sec. 23 N½NE¼, NW¼, N½SW¼
Sec. 24 W½NW¼, NW¼SW¼

HORSE CANYON/ SAND CANYON

Encompasses 1,125 acres of public land and 640 acres reserved mineral estate within:

T. 31 S., R. 34 E., MDB&M
Sec. 25, 26, 34 - 36 All

T. 32 S., R. 34 E., MDB&M
Sec. 1, 2 All
Sec. 12 N½

KERNVILLE HOTSPRINGS

Encompassing 160 acres of public land and 110 acres of reserved mineral estate described as follows:

T. 25 S., R. 33 E., MDB&M
Sec. 23 SW¼, W½SE¼, SE¼SE¼
Sec. 26 N½

KEYESVILLE

Encompassing 7,170 acres of public surface and 865 acres of reserved mineral estate within:

T. 26 S., R. 32 E., MDB&M
Secs. 22, 23, 25 - 27, 34 - 36 All
Sec. 14 W½E½, W½
Sec. 15 E½, E½W½
Sec. 24 S½SW¼

T. 27 S., R. 32 E., MDB&M
Sec. 1 Lots 3, 4, Lot 1 portion NW of State Route 178, S½NW¼, SW¼,
Sec. 2 All
Sec. 12 NW¼, NW¼SW¼

T. 26 S., R. 33 E., MDB&M
Sec. 30 Lots 3 - 4
Sec. 31 Lots 1, 2, 3 portions NW of State Route 178

NORTH FORK OF THE KAWEAH

Encompasses 3,440 acres of public land within:

T. 16 S., R. 28 E., MDB&M
Sec. 14, 23, 24, 25, 34 All
Sec. 13 S½NE¼, S½NW¼, NW¼NW¼, S½
Sec. 22 NE¼NE¼, NW¼SW¼, SE¼SW¼
Sec. 26 N½, SE¼

T. 17 S., R. 28 E., MDB&M
Sec. 1 - 3 All
Sec. 12 NW¼NE¼, N½NW¼

PIUTE CYPRESS ACEC

ALTERNATIVE 1

Encompasses 720 acres of public land and 40 acres reserved mineral estate within:

T. 27 S., R. 33 E., MDB&M
Sec. 19 S½

T. 27 S., R. 32 E., MDB&M
Sec. 24 SE¼, E½SW¼
Sec. 25 NE¼, NE¼NW¼

ALTERNATIVES 2 - 5

Encompasses 720 acres of public land and 200 acres reserved mineral estate within:

T. 27 S., R. 33 E., MDB&M
Sec. 19 S½, NW¼

T. 27 S., R. 32 E., MDB&M
Sec. 24 SE¼, E½SW¼
Sec. 25 NE¼, NE¼NW¼

WALKER PASS

Encompassing 30,900 acres of public land and 4,400 acres of reserved mineral estate within:

T. 25 S., R. 35 E., MDB&M
Sec. 25 portion south of State Route 178
Sec. 36 N½NE¼

T. 25 S., R. 36 E., MDB&M
Secs. 1 - 36 All

T. 26 S., R. 36 E., MDB&M
Sec. 1 Lots 1, 2, S½NE¼
Sec. 6 Lots 1, 2

T. 24 S., R. 36 E., MDB&M
Secs. 25, 35, 36 Public lands east of Canebrake Road

T. 24 S., R. 37 E., MDB&M
Secs. 31, 32 Public lands south and west of Lamont Creek

T. 25 S., R. 37 E., MDB&M
Secs. 7, 8, 17 - 20, 29 - 33
Secs. 5, 6, 9, 16, 21, 27, 28, 34 those portions within the Caliente Resource Area

T. 26 S., R. 37 E., MDB&M
Secs. 5, 6, 7, 18 All
Secs. 4, 8, 9, 17 those portions within the Caliente Resource Area

Appendix A-3 ACEC Support Actions

Designation of Areas of Critical Environmental Concern is in part the result of an identified need for greater management attention in a given area. In order to implement the management prescribed in Alternative 3, certain actions will be necessary. The following list of support actions is not a comprehensive list of all activities that will be required within each ACEC, but a foundation that provides some initial direction.

The following support actions are organized by management area: Coast, Valley, and South Sierra. Within each management area, the ACECs are arranged alphabetically. Following each action is a list of the alternatives under which that action applies.

Coast Management Area

California Rocks & Islands ACEC

None Identified.

Cypress Mtn ACEC

1. Sensitive plant and animal species shall be inventoried and monitored so that the effects of these measures, as well as the need for additional steps, can be identified. Monitoring of sensitive unique plant communities shall occur annually. (Alternatives 3, 4, and 5)

2. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species). (Alternative 2)

3. The public land boundary shall be posted. (Alternatives 2, 3, 4, and 5)

4. A cadastral survey shall be conducted to identify ACEC boundaries. (Alternatives 2, 3, 4, and 5)

5. Administrative and public non-motorized access shall be acquired. (Alternatives 2, 3, 4, and 5)

6. The Bureau shall pursue acquisition of lands with high resource value within the ACEC. (Alternatives 2, 3, 4, and 5)

Frog Pond Mtn ACEC

1. The riparian resources shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened and endangered species). (Alternatives 2, 3, 4, and 5)

2. Contact adjacent private landowners to educate them and inform of ACEC designation. (Alternatives 2, 3, 4, and 5)

3. The public land boundary shall be fenced and posted. (Alternatives 2, 3, 4, and 5)

4. A cadastral survey shall be conducted to identify ACEC boundaries. (Alternatives 2, 3, 4, and 5)

5. Trespass involving any existing unauthorized water diversions shall be resolved. (Alternatives 2, 3, 4, and 5)

6. The Bureau shall apply for water rights in order to reserve water for wildlife and riparian values. (Alternatives 2, 3, 4, and 5)

7. An interpretive sign shall be installed to provide public education of riparian resources and improve protection of the area. (Alternatives 2, 3, 4, and 5)

Irish Hills ACEC

1. Establish a Cooperative Management Agreement with Pacific Gas and Electric. (Alternatives 2 and 3)

2. Establish an administrative access agreement with Pacific Gas & Electric's Diablo Canyon Nuclear Power Plant. (Alternatives 2 and 3)

3. Public access to the ACEC shall be sought through Montana de Oro State Park to the parcel north of Coon Creek. (Alternatives 2 and 3)

Point Sal ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation, wildlife species, and the site integrity of cultural resources. (Alternatives 3, 4, and 5)

2. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species) and the site integrity of cultural resources. Cultural resources shall be patrolled quarterly, or as frequently

as deemed necessary for protection. (Alternative 2)

3. The public land boundary shall be posted. (Alternatives 2, 3, 4, and 5)

4. An information sign shall be provided near the main access point. (Alternatives 2, 3, 4, and 5)

5. Pedestrian access to public land will be acquired for public use. Vehicular access to public land shall be acquired for administrative use. The Bureau shall pursue a CMA with the California Department of Fish and Game providing for their use of any access routes, in order to facilitate patrol of the ACEC. (Alternatives 2, 3, 4, and 5)

6. Acquire public pedestrian and administrative vehicle access. (Alternative 1)

7. The Bureau shall pursue an MOU with CDF&G which gives them management responsibility for Lion Rock. This agreement should provide for protection of the wildlife resource by limiting human activities during the nesting season, prohibiting the removal of products which have commercial value, and by providing for periodic biological surveys. (Alternatives 2, 3, 4, and 5)

8. Acquire additional land within the ACEC boundary as it becomes available. Condemnation of land will not be considered. (Alternatives 2, 3, and 5)

9. Nominate Point Sal as a National Register District because of very significant cultural values. (Alternatives 1, 2, 3, 4, and 5)

10. Sign public land as closed to OHV use and camping. (Alternatives 1 and 5)

Rusty Peak ACEC

1. Acquire administrative access to public land. (Alternative 2)

2. Monitor at least every 3 to 5 years. Studies shall include the inventory and monitoring of vegetation and wildlife (including noxious plants and threatened, endangered, and sensitive species). (Alternative 2)

Salinas River ACEC

1. The riparian resources shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened and endangered species) and cultural resources. (Alternatives 3, 4, and 5)

2. The ACEC shall be monitored by the Bureau annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened and endangered species) and cultural resources. (Alternative 2)

3. The public land boundary shall be posted. (Alternatives 2, 3, 4, and 5)

4. A cadastral survey shall be conducted to identify ACEC boundaries. (Alternatives 2, 3, 4, and 5)

5. Trespass involving any existing unauthorized water diversions shall be resolved. (Alternatives 2, 3, 4, and 5)

6. The Bureau shall notify the state of water use in order to protect water for wildlife and riparian values. (Alternatives 2, 3, 4, and 5)

7. Suitability for Wild and Scenic River status shall be studied. (Alternatives 2, 3, 4, and 5)

Tierra Redonda ACEC

1. Sensitive plant, animal species and fossils shall be inventoried and monitored so that the effects of these measures, as well as the need for additional steps, can be identified. Monitoring of sensitive unique plant communities shall occur annually. (Alternatives 2, 3, 4, and 5)

2. Sensitive plant and animal species and fossils shall be inventoried and monitored so that the effects of these measures, as well as the need for additional steps, can be identified. Monitoring of sensitive unique plant communities shall occur annually. (Alternatives 2, 3, 4, and 5)

3. Interpretive signs shall be installed to provide public education and to protect the sensitive dune formation. (Alternatives 2, 3, 4, and 5)

4. The public land boundary shall be posted. (Alternatives 2, 3, 4, and 5)

5. A cadastral survey shall be conducted to identify ACEC boundaries. (Alternatives 2, 3, 4, and 5)

6. Obtain administrative access. (Alternatives 2, 3, 4, and 5)

Valley Management Area

Alkali Sink ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species), and cultural resources. (Alternatives 2, 3, 4, and 5)

2. Acquire lands with high resource values as available. (Alternatives 2, 3, 4, and 5)

3. The Bureau shall apply for water rights in order to reserve water for wildlife, the maintenance of the rare alkali sink community, and riparian values. (Alternatives 2, 3, and 5)

4. Identify and resolve any unauthorized uses. (Alternatives 2, 3, 4, and 5)

Bittercreek ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species), and cultural resources. (Alternative 2)

2. An MOU will be developed with the USF&WS for the cooperative management of these lands, including grazing authorizations. (Alternative 2)

3. Acquire lands with high resource values as available. (Alternative 2)

4. An interdisciplinary plan shall be prepared to address cultural resources, T & E species, oil and gas development, hazardous materials, livestock grazing, elimination of extraneous roads, and OHVs. (Alternative 2)

Blue Stone Ridge ACEC

1. Change the current management category for the grazing allotment from "Maintain" to "Improve". (Alternatives 2, 3, and 5)

2. Interpretive signs shall be installed to provide public education. (Alternatives 2, 3, and 5)

3. Acquire access to isolated parcels. (Alternatives 3 and 5)

4. The public land boundary shall be posted where it is crossed by roads and trails. (Alternatives 2, 3, and 5)

5. Livestock grazing shall be managed to foster restoration and enhancement of plant communities. (Alternative 2)

6. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species). (Alternative 2)

Buena Vista ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species). (Alternative 2)

2. An interdisciplinary plan shall be prepared to address cultural resources, threatened and endangered species, oil and gas development, hazardous materials, livestock grazing, elimination of extraneous roads, and OHVs. (Alternative 2)

Carrizo Plain ACEC

1. Implementation of the Carrizo Plain ACEC Plan (Appendix J), which covers those portions of the ACEC east of Caliente Mountain. (Alternatives 2, 3, 4, and 5)

2. Nominate Painted Rock sites as a National Register District because of high cultural values. (Alternatives 2, 3, 4, and 5)

3. Class II and III inventories will be implemented to assess the cultural sensitivity within the ACEC. (Alternatives 2, 3, 4, and 5)

4. Develop an MOU with the USGS for scientific study of the fault and definition of allowable surface disturbance. (Alternatives 2 and 4)

5. A supplement to the ACEC Plan will be developed in conjunction with the California Department of Fish and Game to cover the remainder of the ACEC and the NCLWMA. (Alternative 5)

6. Monitor Federally listed plant and animal resources annually. Results shall be used to assess the need for changes in ACEC management. (Alternatives 2, 3, 4, and 5)

7. Monitor significant cultural resources at least biannually to assess their condition (e.g. Painted Rock and Sulphur Spring sites). Should conditions warrant, necessary management actions shall be adjusted to alleviate problems where possible. (Alternatives 2, 3, 4, and 5)

8. Monitor visitor impact to popular sites such as Wallace Creek. (Alternatives 2 and 4)

9. Suitability of Soda Lake for Wild and Scenic River Status shall be studied. (Alternatives 2, 3, 4, and 5)

10. Acquire lands with high resource values from willing sellers as available. Eminent domain (condemnation) will not be used. (Alternatives 2, 3, 4, and 5)

11. A cadastral survey shall be conducted to identify ACEC boundaries. (Alternatives 2, 3, 4, and 5)

12. Interpretive signs will be established at key locations. (Alternatives 2, 3, 4, and 5)

Chico Martinez ACEC

1. The public land boundary shall be posted.

(Alternatives 2, 3, 4, and 5)

2. Acquire lands with high resource values, in particular Carneros Rocks, should any become available. (Alternatives 2, 3, 4, and 5)

3. Acquire public access. (Alternative 3)

4. Develop interpretive materials for the ACEC. (Alternatives 2, 3, 4, and 5)

5. Increase law enforcement patrols of the area. (Alternatives 2, 3, 4, and 5)

6. Develop a CMA with adjacent landowners for controlled public access to the ACEC. (Alternatives 2, 3, 4, and 5)

7. Cultural and paleontological surveys will be conducted to determine sensitive areas. (Alternatives 2, 3, and 5)

Elkhorn Plain ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species). (Alternative 1)

2. Acquire lands with high resource values as available. (Alternative 1)

3. A cadastral survey shall be conducted to identify ACEC boundaries. (Alternative 1)

Goose Lake ACEC

1. The ACEC shall be monitored at least annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species), and cultural resources. (Alternatives 2, 3, 4, and 5)

2. Sensitive resources shall be monitored at least annually. Results shall be used to assess the need for changes in ACEC management. (Alternative 1)

3. Acquire lands with high resource values as available. (Alternatives 2, 3, 4, and 5)

4. The public land boundary shall be posted. (Alternatives 2, 3, 4, and 5)

5. An interpretive sign will be installed in an effort to increase public awareness and sensitivity. (Alternatives 2, 3, 4, and 5)

Kettleman Hills ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species), and paleontological resources. (Alternatives 2 and 5)

2. The public land boundary shall be posted along major roads and access points. (Alternatives 2 and 5)

Lokern ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species). (Alternatives 2, 3, 4, and 5)

2. Select areas within the ACEC may be set aside for scientific research purposes. (Alternative 2)

3. Acquire lands with high resource values as available. (Alternatives 2, 3, 4, and 5)

4. The public land boundary shall be posted along major roads and access routes. (Alternatives 2, 3, 4, and 5)

5. A cadastral survey shall be conducted to identify ACEC boundaries. (Alternatives 2, 3, 4, and 5)

6. A Cooperative Management Agreement with adjacent landowners shall be pursued in order to increase the protection afforded to listed species. (Alternatives 2, 3, 4, and 5)

San Andreas Fault Scarp ACEC

1. Acquire lands with high resource values as available. (Alternative 1)

2. Develop an MOU with the USGS for scientific study of the fault and definition of allowable surface disturbance. (Alternative 1)

Soda Lake ACEC

1. Acquire lands with high resource values as available. (Alternative 1)

2. The public land boundary shall be fenced and posted. (Alternative 1)

3. A cadastral survey shall be conducted to identify ACEC boundaries. (Alternative 1)

4. The suitability of Soda Lake for Wild and Scenic River status shall be studied. (Alternative 1)

South Sierra Management Area

Blue Ridge ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species), and cultural resources. (Alternatives 3, 4 and 5)

2. Acquire lands with high resource values as available. (Alternatives 1, 2, 3, 4, and 5)

Case Mountain ACEC

1. The ACEC shall be monitored annually. Studies shall target trend and condition of the sequoias, inventory of spotted owls and pileated woodpeckers, trend and condition of California nutmeg trees, *Brodiaea insignis*, *Ribes tularensis*, riparian areas, and cultural resources. Recent and potential impacts to these resources will also be monitored. (Alternatives 2, 3, 4, and 5)

2. Initiate studies to ascertain the effects of livestock grazing upon the sequoia community. A grazing exclosure shall be constructed as a part of this study. (Alternatives 2, 3, 4, and 5)

3. Grazing monitoring studies shall be conducted annually. (Alternative 3)

4. Grazing operations shall be adjusted or terminated within the sequoias if they are shown to have a negative effect upon the plant community. (Alternative 4)

5. Sensitive plant species within the ACEC shall be inventoried and subsequently monitored. Significant changes in the species status, population sizes or in identified threats to their viability shall result in a re-evaluation of management prescriptions. (Alternative 3)

6. Acquire lands with high resource values as available. (Alternatives 2, 3, 4, and 5)

7. Maintain the Salt Creek Road in order to minimize erosion. (Alternatives 2, 3, 4, and 5)

8. Develop a parking area at the end of the public access route. (Alternatives 3 and 5)

9. The Bureau shall seek access across private lands as a measure to ensure permanent access to the ACEC. (Alternatives 3, 4, and 5)

10. The Bureau shall develop an ACEC management plan for the Case Mountain ACEC. (Alternatives 2, 3, 4, and 5)

11. A fuels management plan shall be prepared and implemented to ensure proper management of the sequoia and chaparral plant communities with the use of fire. (Alternatives 2, 3, 4, and 5)

Chimney Peak ACEC

1. Protection and monitoring of riparian and meadow areas may include fencing, special use seasons, restrictions on use, and/or rehabilitation projects. An ACEC plan will detail specific problems and resolutions. (Alternative 2)

2. Continue study of the Blackstain Root Disease to determine what constraints need to be applied. Constraints could include salvage cutting, prescribed burning, or a prohibition on firewood cutting. (Alternative 2)

3. The occurrence of sensitive plant species, including *Phacelia novenmillensis* shall be studied in the ACEC with specific management guidelines to be detailed in the ACEC plan. Known habitat areas may have public access blocked or grazing curtailed to benefit the species. (Alternative 2)

4. Acquire lands with high resource values as available. (Alternative 2)

5. Chimney Creek and Long Valley Campgrounds shall be maintained. (Alternative 2)

6. The Canebrake/Long Valley Loop Road is designated as a Scenic Backcountry Byway. The suitability of Chimney Creek for WSR status shall be studied. Interpretive signs shall be placed along the Backcountry Byway and other high use recreational zones as appropriate. (Alternative 2)

7. The ACEC plan shall develop a plan for monitoring and patrol of cultural resources and known areas of traditional lifeway values, such as pinyon woodland areas. (Alternative 2)

8. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species) and cultural resources. (Alternative 2)

Deer Spring ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species) and cultural resources. (Alternative 2)

Erskine Creek ACEC

1. The ACEC shall be monitored annually. Studies shall

include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species) and caves. (Alternatives 2 and 5)

2. Trespass involving any existing unauthorized water diversions shall be resolved. (Alternative 2)

Horse Canyon / Sand Canyon ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species), cultural and paleontological resources. (Alternatives 2, 3, 4, and 5)

2. The public land boundary shall be posted. (Alternatives 2, 3, 4, and 5)

3. A cadastral survey may be conducted if needed to identify ACEC boundaries. (Alternatives 2, 3, 4, and 5)

4. Trespass involving any existing unauthorized water diversions shall be resolved. (Alternatives 2, 3, 4, and 5)

5. The Bureau shall apply for water rights in order to reserve water for wildlife and riparian values. (Alternatives 2, 3, 4, and 5)

6. Acquire lands with high resource values as available. (Alternatives 2, 3, 4, and 5)

7. Acquire administrative access to all parcels of public land. (Alternatives 2, 3, 4, and 5)

8. Pursue a CMA with the State of California for data collection on sensitive resources. (Alternatives 2, 3, 4, and 5)

Kernville Hotsprings ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species). (Alternative 2)

2. The public land boundary shall be posted. (Alternative 2)

3. Change the current management category for the grazing allotment from "Maintain" to "Improve". (Alternative 2)

4. Riparian areas and rare plant populations shall be fenced. (Alternative 2)

Keyesville ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species) and cultural resources. (Alternative 2)

2. The MOU with the USFS for managing the white-water Lower Kern River for commercial and individual raft trips shall be continued. (Alternative 2)

3. Law enforcement coverage shall be increased to ensure safety of visitors and to eliminate illegal activities. (Alternative 2)

4. Signs shall be erected and resource protection educational publications distributed to provide public awareness of rules and regulations. (Alternative 2)

5. Erosion caused in the past by unauthorized OHV use shall be rehabilitated. (Alternative 2)

6. Acquire lands with high resource values as available. (Alternative 2)

7. The public land boundary shall be posted along roads and key access points. (Alternative 2)

8. The Pearl Harbor Memorial Tree Plantation may be managed in association with the Pearl Harbor Survivors Association. (Alternative 2)

9. A CRMP shall be used to address implementation of these prescriptions. (Alternative 2)

10. The Lower Kern River shall be studied for Wild and Scenic River suitability. (Alternative 2)

11. Develop an agreement with user groups for trail maintenance. (Alternative 2)

12. Pursue nomination of the Keyesville complex (townsite, fort, cabin, cemetery) to the National Register of Historic Places (public/private land). (Alternative 2)

13. Develop an interpretive plan pertinent to the historic townsite. (Alternative 2)

North Fork of the Kaweah ACEC

1. The ACEC shall be monitored annually. Studies shall include the inventory and monitoring of vegetation and wildlife species (including noxious plants and threatened, endangered, and sensitive species) and cultural resources. (Alternatives 2 and 4)

2. The public land boundary shall be posted. (Alternatives 2 and 4)

3. A cadastral survey shall be conducted to identify ACEC boundaries. (Alternatives 2 and 4)

4. Trespass involving any existing unauthorized water diversions shall be resolved. (Alternatives 2 and 4)

5. The Bureau shall apply for water rights in order to reserve water for wildlife and riparian values. (Alternatives 2 and 4)

6. The North Fork of the Kaweah River shall be studied for WSR suitability. (Alternatives 2 and 4)

7. Interpretive signs shall be installed. (Alternatives 2 and 4)

8. Acquire lands with high resource values as available. (Alternatives 2 and 4)

Piute Cypress ACEC

1. Studies to ascertain the effects of livestock grazing upon the Piute cypress plant community shall be initiated. A grazing exclosure shall be constructed as a part of this study. (Alternative 5)

2. The public land boundary shall be posted along major roads and access points. (Alternatives 1, 2, 3, 4, and 5)

3. A cadastral survey shall be conducted to identify ACEC boundaries. (Alternatives 1, 2, 3, 4, and 5)

4. The current management category of the grazing allotment shall be changed from "Custodial" to "Improve". (Alternatives 1, 3, 4, and 5)

5. An ACEC plan shall be developed which will include a fire plan to enhance the regeneration of Piute Cypress. (Alternatives 1, 2, 3, 4, and 5)

Walker Pass ACEC

1. The ACEC shall be monitored annually. Grazing monitoring studies shall be conducted annually. Sensitive plant species within the ACEC shall be inventoried and subsequently monitored. Significant changes in the species status, population sizes or in identified threats to their viability shall result in re-evaluation of management prescriptions. (Alternatives 2, 3, 4, and 5)

2. Systematic monitoring of two pictograph sites, the Spanish Needle site, and the Walker Pass National Historic Landmark shall be done annually and periodically patrolled. The traditional pinyon collecting area will be patrolled during the season of use. (Alternatives 2, 3, 4, and 5)

3. Grazing monitoring studies shall be conducted annually. (Alternatives 2, 3, 4, and 5)

4. Maintain the Walker Pass trailhead. (Alternatives 2, 3, 4, and 5)

5. Private lands within the ACEC with high resource values shall be targeted for acquisition. (Alternatives 2, 3, 4, and 5)

6. Closed roads shall continue to be rehabilitated. (Alternatives 2, 3, 4, and 5)

APPENDIX B - BIOLOGICAL RESOURCES

Appendix B-1 Sensitive Animals

Appendix B-2 Neotropical Migrating Birds

Appendix B-3 Sensitive Plants

Appendix B-4 Noxious Weeds

Appendix B-5 Conservation Strategy for Threatened and Endangered Species in the San Joaquin Valley

Appendix B-1 Sensitive Animals

SENSITIVE ANIMAL SPECIES IN THE CALIENTE RESOURCE AREA

COMMON NAME	GENUS	SPECIES	SUBSPECIES	STATUS[1]	BLM OCCURRENCE/HABITAT[2,3] C	V	S
ALEUTIAN CANADA GOOSE	BRANTA	CANADENSIS	LEUCOPAREIA	FE		N1	L1 N1 AGS,WTM,FEW,LAC
AMERICAN PEREGRINE FALCON	FALCO	PEREGRINUS	ANATUM	FE	CE	K	H M2 JPN,VRI,ASC,AGS,LAC,EST
AMERICAN WHITE PELICAN	PELECANUS	ERYTHRORHYNCHOS			CSC	N1	K N1 LAC,EST,MAR
ASHY STORM-PETREL	OCEANODROMA	HOMOCHROA			CSC	M2	N3 N3 MAR
BADGER	TAXIDEA	TAXUS			CSC	K	K H BOW,MCH,DSC,ASC,AGS
BALD EAGLE	HALIAEETUS	LEUCOCEPHALUS		FE	CE	L1	L1 L1 SMC,JPN,VRI,RIV,LAC EST
BANK SWALLOW	RIPARIA	RIPARIA			CT	L1	L1 L1 VRI
BARROW'S GOLDENEYE	BUCEPHALA	ISLANDICA			CSC	N1	N1 L1 RIV,LAC
BELDING'S SAVANNAH SPARROW	PASSERCULUS	SANDWICHENSIS	BELDINGI	FC2	CE	N1	N3 N3 SEW
BENDIRE'S THRASHER	TOXOSTOMA	BENDIREI			CSC	N3	N3 M2 DSW,DSC,ASC
BLACK STORM-PETREL	OCEANODROMA	MELANIA			CSO	L2	N3 N3 MAR
BLACK SWIFT	CYPSELOIDES	NIGER			CSC	L2	L2 M2 SMC,ASP,MHW,BOW
BLACK-SHOULDERED KITE	ELANUS	CAERULEUS			CFP	K	K M2 BOW,CSC,ASC,AGS
BLUE WHALE	BALAENOPTERA	MUSCULUS		FE		L2	N1 N1 MAR
BLUNT-NOSED LEOPARD LIZARD	GAMBELIA	SILUS		FE	CE	M1	K K ASC,AGS
BROWN-CRESTED FLYCATCHER	MYIARCHUS	TYRANNULUS			CSC	N3	N3 L1 MR,VRI,DSW
BUENA VISTA LAKE SHREW	SOREX	ORNATUS	RELICTUS	FC2	CSC	N3	L1 N3 ASC
BURROWING OWL	ATHENE	CUNICULARIA			CSC	M1	K M2 DSC,ASC,AGS
CALIFORNIA BLACK RAIL	LATERALLUS	JAMAICENSIS	COTURNICULUS	FC2	CT	N1	N3 N3 FEW,SEW
CALIFORNIA BROWN PELICAN	PELECANUS	OCCIDENTALIS	CALIFORNICUS	FE	CE	K	N1 N1 EST,MAR
CALIFORNIA CLAPPER RAIL	RALLUS	LONGIROSTRIS	OBSOLETUS	FE	CE	N3	N3 N3 SEW
CALIFORNIA CONDOR	GYMNOGYPS	CALIFORNIANUS		FE	CE	K	K K SMC,JPN,PPN,BOW,BOP,MCH, ASC,AGS
CALIFORNIA GULL	LARUS	CALIFORNICUS			CSC	H	K H RIV,LAC,EST,MAR
CALIFORNIA HORNED LIZARD	PHRYNOSOMA	CORONATUM	FRONTALE		CSC	H	K N3 BOW,MCH CRC,CSC,ASC,AGS
CALIFORNIA LEAF-NOSED BAT	MACROTUS	CALIFORNICUS		FC2	CSC	L1	N3 N3 DSS,DSW,DSC
CALIFORNIA LEAST TERN	STERNA	ANTILLARUM	BROWNI	FE	CE	H	N3 N3 RIV,LAC,EST MAR
CALIFORNIA RED-LEGGED FROG	RANA	AURORA	DRAYTONII	FC2		M1	L1 L1 WTM,FEW,RIV,LAC
CALIFORNIA TIGER SALAMANDER	AMBYSTOMA	TIGRINUM	CALIFORNIENSE	FC2		H	M1 H B:O W , V:O W , V:R I , A G S , W T M FEW,RIV
CALIFORNIA WOLVERINE	GULO	GULO	LUTEUS	FC2	CT	N3	N3 L1 RFR,LPN,ADS,WTM
COMMON LOON	GAVIA	IMMER			CSC	N1	N1 N1 RIV,LAC
COOPER'S HAWK	ACCIPITER	COOPERII			CSC	K	K K SMC,JPN,ASP,BOW,VOW,COW ,BOP,VRI
DOUBLE-CRESTED CORMORANT	PHALACROCORAX	AURITUS			CSC	K	K M1 FEW,RIV,LAC,EST,MAR
ELEGANT TERN	STERNA	ELEGANS		FC2		H	N3 N3 RIV,LAC,EST,MAR
FERRUGINOUS HAWK	BUTEO	REGALIS		FC2		H	K K ASC,AGS
FINBACK WHALE	BALAENOPTERA	PHYSALUS		FE		L2	N1 N1 MAR
FOOTHILL YELLOW-LEGGED FROG	RANA	BOYLEI			CSC	M1	N3 L1 COW,VRI,RIV
FORK-TAILED STORM-PETREL	OCEANODROMA	FURCATA			CSC	L2	N3 N3 MAR
FRESNO KANGAROO RAT	DIPODOMYS	NITRATOIDES	EXILIS	FE	CE	N3	L1 N3 ASC,AGS
FULVOUS WHISTLING-DUCK	DENDROCYGNA	BICOLOR		FC2	CSC	L1	L1 L1 WTM,FEW,RIV,LAC
GIANT KANGAROO RAT	DIPODOMYS	INGENS		FE	CE	K	N3 MCH,ASC,AGS
GIANT SIERRA GARTER SNAKE	THAMNOPHIS	COUCHI	GIGAS	FC2	CT	N3	L1 N3 FEW,RIV
GOLDEN EAGLE	AQUILA	CHRYSAETOS			CFP	K	K K SMC,JPN,PPN,PJN,JUN,ASP,M HC,MHW,BOW,VOW,COW,BOP, MR,VRI,DRI,JST,MCH,CRC,CS C,DSC,ASC,AGS
GRAY VIREO	VIREO	VICINIOR			CSC	N3	N3 M2 PJN,JUN,MCH
GRAY WHALE	ESCHRICHTIUS	ROBUSTUS		FE		K	N1 N1 EST,MAR
GREAT BLUE HERON	ARDEA	HERODIAS			CSC	H	K K VRI,WTM,FEW,SEW,RIV,LAC,ES T,MAR
GREATER SANDHILL CRANE	GRUS	CANADENSIS	TABIDA		CT	L1	K L1 ASC,AGS,WTM,LAC
GREATER WESTERN MASTIFF-BAT	EUMOPS	PEROTIS	CALIFORNICUS	FC2	CSC	H	M2 M2 BOW,BOP,VRI,MCH,CRC,DSW, DSC
GUADALUPE FUR SEAL	ARCTOCEPHALUS	TOWNSENDI		FT	CT	L1	N3 N3 MAR
HARLEQUIN DUCK	HISTRIONICUS	HISTRIONICUS			CSC	N1	N1 L1 RIV,LAC
HUMPBACK WHALE	MEGAPTERA	NOVAEANGLIAE		FE		H	N1 N1 MAR
KERN BROOK LAMPREY	LAMPETRA	HUBBSI		FC2	CSC	N3	N1 N3 RIV
KERN CANYON SLENDER SALAMANDER	BATRACHOSEPS	SIMATUS		FC2	CT	N3	N3 M2 BOW,BOP,AGS
KERN PRIMROSE SPHINX MOTH	EUPROSERPINUS	EURERPE		FT		N1	N1 L1 DSC,AGS
KERN RIVER RAINBOW TROUT	SALMO	GAIRDNERI	GILBERTI	FC2		N3	N3 H RIV
LARGE-BILLED SAVANNAH SPARROW	PASSERCULUS	SANDWICHENSIS	ROSTRATUS	FC2		N1	N3 N3 SEW
LE CONTE'S THRASHER	TOXOSTOMA	LECONTEI			CSC	N1	K L1 MCH,DSC,ASC
LEAST BELL'S VIREO	VIREO	BELLII	PUSILLUS	FE	CE	N2	N2 N2 MR,VRI
LEAST BITTERN	IXOBRYCHUS	EXILIS			CSC	L1	L1 N1 WTM,FEW,LAC,EST
LIGHT-FOOTED CLAPPER RAIL	RALLUS	LONGIROSTRIS	LEVIPES	FE	CE	N1	N3 N3 SEW
LONG-BILLED CURLEW	NUMENIUS	AMERICANUS		FC2		M2	K M1 ASC,AGS,WTM
LONG-EARED OWL	ASIO	OTUS			CSC	L2	L2 H BOW,COW,MR,VRI
LOS ANGELES POCKET MOUSE	PEROGNATHUS	LONGIMEMBRIS	BREVINASUS	FC2		N3	N3 N3 DSC ASC,AGS

MARBLED MURRELET	BRACHYRAMPHUS	MARMORATUS		FC2	CCT	H	N3	N3	MAR	
MERLIN	FALCO	COLUMBARIUS			CSC	K	K	K	JPN,PPN,PJN,JUN,MHC,MHW,BOW,VOW,COW,BOP,EUC,MRI,VRI,JST,MCH,CRC,CSC,DSC,ASC,AGS,FEW,SEW,PAS,CRP,URB	
MOHAVE GROUND SQUIRREL	SPERMOPHILUS	MOHAVENSIS		FC2	CT	N3	N3	M2	JST,DSC,ASC AGS	
MORRO BAY KANGAROO RAT	DIPODOMYS	HEERMANNI	MORROENSIS	FE	CE	L1	N3	N3	ACSC	
MOUNTAIN PLOVER	CHARADRIUS	MONTANUS		FC2		M2	K	M2	ASC,AGS,LAC,EST	
NORTHERN GOSHAWK	ACCIPITER	GENTILIS			CSC	L1	L1	L2	RFR,JPN,SMC,JPN	
NORTHERN HARRIER	CIRCUS	CYANEUS			CSC	H	K	K	DSC,ASC,AGS,WTM,FEW,SEW,PAS	
NORTHERN SEA LION	EUMETOPIAS	JUBATUS		FT		K	N3	N3	MAR	
NORTHWESTERN POND TURTLE	CLEMMYS	MARMORATA	MARMORATA	FC3C		N3	M1	M1	FEW,RIV,LAC	
OSPREY	PANDION	HALIAETUS			CSC	L1	L1	M1	SMC,JPN,VRI,RIV,LAC	
PACIFIC FISHER	MARTES	PENNANTI	PACIFICA		CSC	N3	N3	M1	RFR,LPN,JPN,PPN	
PACIFIC KANGAROO RAT	DIPODOMYS	AGILIS	FUSCUS		CSC	H	L2	H	MCH,ASC	
PACIFIC LITTLE POCKET MOUSE	PEROGNATHUS	LONGIMEMBRIS	PACIFICUS	FC2		L1	H	H	MCH,DSC,ASC AGS	
PALE BIG-EARED BAT	PLECOTUS	TOWNSENDII	PALLESCENS		CSC	H	H	H		
PRAIRIE FALCON	FALCO	MEXICANUS			CSC	K	K	K	MCH,DSC,ASC,AGS	
PURPLE MARTIN	PROGNE	SUBIS			CSC	L1	L1	L1	MRI,VRI,RIV	
RHINOCEROS AUKLET	CERORHINCA	MONOCERATA			CSC	H	N3	N3	MAR	
RIGHT WHALE	BALAENA	GLACIALIS		FE		M2	N1	N1	MAR	
SALINAS POCKET MOUSE	PEROGNATHUS	INORATUS	PSAMMOPHILUS	FC2	CSC	M2	N3	N3	VRI,MCH,AGS	
SAN JOAQUIN ANTELOPE SQUIRREL	AMMOSPERMOPHILUS		NELSONI	FC2	CT	L1	K	N3	MCH,ASC,AGS	
SAN JOAQUIN KIT FOX	VULPES	MACROTIS	INORNATUS	FE	CT	K	K	K	MCH,ASC,AGS	
SAN JOAQUIN POCKET MOUSE	PEROGNATHUS	INORNATUS	INORNATUS	FC2		H	K	H	MCH,ASC,AGS	
SAN JOAQUIN VALLEY WOODRAT	NEOTOMA	FUSCIPES	RIPARIA	FC2		N3	N3	N3	VRI	
SANTA BARBARA SONG SPARROW	MELOSPIZA	MELODIA	GRAMINEA	FC3A		N2	N1	N1	SEW	
SEI WHALE	BALAENOPTERA	BOREALIS		FE		L2	N1	N1	MAR	
SHARP-SHINNED HAWK	ACCIPITER	STRIATUS			CSC	K	K	K	SMC,WFR,JPN,ASP,BOW,COW,BOP,MRI,VRI	
SHORT-EARED OWL	ASIO	FLAMMEUS			CSC	L2	M2	M2	ASC,AGS.WTM,FEW,SEW	
SHORT-NOSED KANGAROO RAT	DIPODOMYS	NITRATOIDES	BREVINASUS	FC2	CSC	M2	K	N3	MCH,ASC,AGS	
SIERRA NEVADA RED FOX	VULPES	VULPES	NECATOR	FC2	CT	N3	N3	L1	RFR,LPN,SMC,ADS,WTM	
SOUTHERN RUBBER BOA	CHARINA	BOTTAE	UMBRATICA	FC2	CT	K	N3	N3	JPN,PJN.MRI,RIV	
SOUTHERN SEA OTTER	ENHYDRA	LUTRIS	NEREIS	FT		H	N3	N3	MAR	
SOUTHWESTERN POND TURTLE	CLEMMYS	MARMORATA	PALLIDA	FC2	CSC	M1	M1	N3	AFEW,RIV,LAC	
SPERM WHALE	PHYSETER	MACROCEPHALUS		FE		L2	N1	N1	MAR	
SPOTTED BAT	EUDERMA	MACULATUM		FC2		L1	L1	M2	SMC,JPN,MHW,RIV,LAC	
SPOTTED OWL	STRIX	OCCIDENTALIS		FC2		M1	N1	K	RFR,SMC,COW,MRI,VRI	
SUMMER TANAGER	PIRANGA	RUBRA			CSC	N3	N3	L1	MRI,VRI	
SWAINSON'S HAWK	BUTEO	SWAINSONI		FC3C	CT	M2	K	M2	ASC,AGS	
TEHACHAPI SLENDER SALAMANDER	BATRACHOSEPS	STEBBINSI		FC2	CT	N3	N3	M2	BOW,BOP,AGS	
TEHACHAPI WHITE-EARED POCKET MOUSE	PEROGNATHUS	ALTICOLA	INEXPECTATUS	FC2		M2	N1	M2	WFR,JPN,BOP,JST	
TIPTON KANGAROO RAT	DIPODOMYS	NITRATOIDES	NITRTOIDES	FE	CE	N3	K	N3	ASC,AGS	
TRICOLORED BLACKBIRD	AGELAIUS	TRICOLOR		FC2		L1	L1	L1	FEW	
TUFTED PUFFIN	FRATERCULA	CIRRHATA			CSC	L2	N3	N3	MAR	
TULARE GRASSHOPPER MOUSE	ONYCHOMYS	TORRIDUS	TULARENSIS		CSC	M2	H	M2	ASC,AGS	
TULE ELK	CERVUS	ELAPHUS	NANNODES		CSC	K	K	N3	BOW,MCH,ASC,AGS	
VALLEY ELDERBERRY LONGHORN BEETLE	DESMOCERUS	DIMORPHUS		FT		N1	L2	N1	VRI	
VERMILION FLYCATCHER	PYROCEPHALUS	RUBINUS			CSC	L1	L1	L1	MRI,VRI,DSW	
WESTERN SNOWY PLOVER	CHARADRIUS	ALEXANDRINUS	NIVOSUS	FC2		M1	K	N1	ASC,LAC,EST MAR	
WESTERN YELLOW-BILLED CUCKOO	COCCYZUS	AMERICANUS	OCCIDENTALIS	FC3B	CE	N3	L1	L1	MRI,VRI	
WHITE-EARED POCKET MOUSE	PEROGNATHUS	ALTICOLA	ALTICOLA	FC2		M2	N1	M2	WFR,JPN,BOP,JST	
WHITE-FACED IBIS	PLEGADIS	CHIHI		FC2	CSC	L1	H	L1	WTM,FEW,SEW,RIV,LAC,EST	
WILLOW FLYCATCHER	EMPIDONAX	TRAILLII			CE	M1	L1	K	MRI,VRI	
YELLOW WARBLER	DENDROICA	PETECHIA	BREWSTERI		CSC	H	H	K	MRI,VRI	
YELLOW-BLOTCHED ENSATINA	ENSATINA	ESCHSCHOLTZI	CROCEATER	FC2		M2	N3	M2	JPN,BOW,BOP	
YELLOW-BREASTED CHAT	ICTERIA	VIRENS			CSC	H	H	H	MRI,VRI	
YELLOW-EARED POCKET MOUSE	PEROGNATHUS	XANTHONOTUS			CSC	N3	N3	M2	PJN,MCH,DSC	

[1] Status - Federal: FE, endangered; FT, threatened; FC1, candidate 1; FC2, candidate 2; FC3A, extinct; FC3B, taxonomically indistinct; FC3C, more abundant than originally thought. State: CE, endangered; CT, threatened; CCT, candidate for threatened; CFP, fully protected; CSC, species of special concern.

[2] Occurrence on public land; K, known; H, highly likely; M1, likely but limited habitat; M2, likely but localized species; L1, unlikely (local species and limited habitat); L2, unlikely (very localized species); N1, very unlikely (no suitable habitat); N2, very unlikely (limited suitable habitat exists but known not to be occupied); N3, very unlikely (outside of normal range).

[3] Column headings referring to management areas: C, Coast; V, Valley; S, South Sierra.

HABITAT CODES AND DESCRIPTIONS USED IN THE TEXT FOR SENSITIVE ANIMALS

Wildlife Habitat Relationships Codes[1]		California Native Plant Society Codes[2]
ADS	Alpine dwarf-shrub	ALPBR
AGS	Annual grassland	VFGRS
ASC	Alkali desert scrub	CHSCR
ASP	Aspen	BUFRS
BOP	Blue oak-digger pine	
BOW	Blue oak woodland	
COW	Coastal oak woodland	BUFRS
CPC	Closed-cone pine-cypress	CCFRS
CRC	Chamise-redshank chaparral	
CRP	Cropland	
CSC	Coastal scrub	CBSCR
DFR	Douglas-fir	NCFRS
DRI	Desert riparian	
DSC	Desert scrub	MDSCR
DSS	Desert succulent shrub	
DSW	Desert wash	
EST	Estuarine	
EUC	Eucalyptus	
FEW	Fresh emergent wetland	MSHSW
JPN	Jeffrey pine	
JST	Joshua tree	JTWLD
JUN	Juniper	PJWLD
LAC	Lacustrine	VNPLS
LPN	Lodgepole pine	UCFRS
MAR	Marine	
MCH	Mixed chaparral	CHPRL
MCP	Montane chaparral	
MHC	Montane hardwood-conifer	BUFRS
MHW	Montane hardwood	BUFRS
MRI	Montane riparian	
PAS	Pasture	
PGS	Perennial grassland	
PJN	Pinyon juniper	PJWLD
PPN	Ponderosa Pine	
RDW	Redwood	NCFRS
RFR	Red fir	
RIV	Riverine	
SCN	Subalpine conifer	SCFRS
SEW	Saline emergent wetland	
SGB	Sagebrush	GBSCR
SMC	Sierran mixed conifer	
URB	Urban	
VOW	Valley oak woodland	
VRI	Valley Foothill Riparian	RPFRS,RPWLD
WFR	White fir	UCFRS
WTM	Wet meadow	BGFNS,MEDWS,VNPLS

[1] Mayer and Laudenslayer Jr. (eds), 1988
[2] Holland, 1986

Note: The names and status of plants listed as threatened or endangered by the US Fish & Wildlife Service were taken from the Federal Register. Additions, subtractions, and changes to this list will be made to reflect changes in status, as announced in future additions of the Federal Register. Modifications to this list that would result in significant impacts first must undergo NEPA analysis and public review.

Appendix B-2 Neotropical Migrating Birds

NEOTROPICAL MIGRATING BIRDS FOUND WITHIN THE CALIENTE RESOURCE AREA

Common Name	Scientific Name	Tropical Dependence[1]	Use of Public Land Migration[2]	Nesting[2]
Allen's hummingbird	Selasphorus sasin	1	3 COW,MCH	4 CSC,MCH,VRI
American avocet	Recurvirostra americana	4	3 FEW,LAC,SEW	4 FEW,LAC
American bittern	Botaurus lentiginosus	2	5 FEW,MRI,VRI	5 FEW
American pipit	Anthus spinoletta	4	3 AGS	0 ADS
American redstart	Setophaga ruticilla	2	4 COW,VRI	0 NONE
American white pelican	Pelecanus erythrorynchos	3	3 EST,LAC	0 NONE
ash-throated flycatcher	Myiarchus cinerascens	2	3 BOP,BOW,MCH, MRI,PJN,VRI	3 BOP,BOW,MCH, MRI,PJN,VOW, VRI
Baird's sandpiper	Calidris bairdii	1	4 LAC	0 NONE
bank swallow	Riparia riparia	1	5 MOST	5
barn swallow	Hirundo rustica	1	3 MOST	4 OPEN
Bell's vireo	Vireo bellii	1	5 VRI	5 VRI
belted kingfisher	Ceryle alcyon	4	4 LAC,MAR,RIV	4 EST,LAC,MAR, RIV
Bendire's thrasher	Toxostoma bendirei	2	4 DSC	5 DSC,DSW
black swift	Cypseloides niger	1	5 MOST	5 MONTANE -FOREST/OPEN
black tern	Chlidonias niger	1	5 EST,FEW,LAC	5 FEW,LAC
black-bellied plover	Pluvialis squatarola	3	4 FEW,LAC,SEW	0 NONE
black-chinned hummingbird	Archilochus alexandri	1	3 MCH,VRI	4 LOWER ELEV.TREES/S HRUBS
black-chinned sparrow	Spizella atrogularis	2	4 CRC,DSC,MCH, SGB	4 CRC,DSC,MCH, SGB
black-crowned night-heron	Nycticorax nycticorax	3	4 FEW,MRI,VRI	5 EST,FEW,LAC, SEW
black-headed grosbeak	Pheucticus melanocephalus	1	3 BOP,BOW,COW, MCH,MHW,MRI, VRI,CON/EDG	3 BOP,BOW,COW, MCH,MHW,MRI, VRI,CON/EDG
black-necked stilt	Himantopus mexicanus	2	3 FEW,LAC,SEW	4 FEW,LAC
black-throated gray warbler	Dendroica nigrescens	2	3 MOST TREES	3 JUN,MCH,MHW, PLUS MANY CONIFERS
black-throated sparrow	Amphispiza bilineata	3	4 DSC,JST	4 DSC,JST
blue grosbeak	Guiraca caerula	1	3 VRI	4 VRI
blue-gray gnatcatcher	Polioptila caerulea	2	4 MOST LOW ELEV. TREES/SHRUBS	4 BOW,DRI,MCH, MHW,VRI
Bonaparte's gull	Larus philadelphia	4	4 EST,FEW,LAC, MAR,SEW	0 NONE
Brewer's blackbird	Euphagus cyanocephalus	5	3 ASC,DSC,OPEN INGS IN TREE DOMINATED	3 ASC,DSC,OPEN INGS IN TREE DOMINATED
Brewer's sparrow	Spizella breweri	2	3 AGS,ASC,SGB	4 SGB
brown-crested flycatcher	Myiarchus tyrannulus	1	5 VRI	5 VRI
brown-headed cowbird	Molothrus ater	4	3 MCH,MHW,MRI, VRI,OPENINGS HIGH TREES	3 MCH,MHW,MRI, VRI,OPENINGS HIGH TREES
burrowing owl	Athene cunicularia	3	3 AGS,ASC	3 AGS,ASC
calliope hummingbird	Stellula calliope	1	4 DRI,VRI	4 MOST
Caspian tern	Sterna caspia	2	3 EST,LAC,MAR	0 NONE
Cassin's finch	Carpodacus cassinii	4	3 MOST TREES	4 WIDE
Cassin's kingbird	Tyrannus vociferans	1	4 AGS,BOW	5 BOW,VOW,VRI
cattle egret	Bubulcus ibis	3	4 CRP,FEW,MRI, VRI	5 CRP,FEW,LAC, PAS,SEW
cedar waxwing	Bombycilla cedrorum	4	3 MOST TREES/SHRUBS	0 MRI,EARLY SERAL

Common Name	Scientific Name	Tropical Dependence[1]	Use of Public Land Migration[2]	Nesting[2]
chipping sparrow	Spizella passerina	3	3 OPENINGS IN TREE DOMINANT HABITAT	4 OPENINGS IN TREE DOMINANT HABITAT
Clark's grebe	Aechmophorus clarkii	4	3 EST,LAC,MAR	5 FEW
clay-colored sparrow	Spizella pallida	2	4 BOW,MRI,VRI	0 NONE
cliff swallow	Hirundo pyrrhonota	1	3 MOST	3 OPEN
common nighthawk	Chordeiles minor	1	4 MOST	4 OPEN
common poorwill	Phalaenoptilus nuttallii	2	3 ROCKS	3 DRY AREAS W/ROCKS
common snipe	Gallinago gallinago	3	3 FEW,LAC,PAS, SEW,WTM	0 FEW,LAC,PAS, WTM
common tern	Sterna hirundo	5	3 LAC	0 NONE
common yellowthroat	Geothylpis trichas	3	4 FEW,VRI,WTM	4 FEW,VRI,WTM
Costa's hummingbird	Calypte costae	2	4 DRI,DSC,VRI	4 CRC,CSC,DSC, DSW,MCH
double-crested cormorant	Phalacrocorax auritus	3	3 EST,LAC,MAR	5 EST,FEW,LAC
dunlin	Calidris alpina	3	4 FEW,LAC,MAR, SEW	0 NONE
dusky flycatcher	Empidonax oberholseri	2	4 MRI,VRI,MOST TREES	4 MCP,MID/HIGH BRUSHLAND,EA RLY SERAL
eared grebe	Podiceps nigricollis	3	3 EST,LAC,MAR	5 FEW
flammulated owl	Otus flammeolus	1	4 BOP	4 ASP,JPN,PPN
Forster's tern	Sterna forsteri	2	3 EST,FEW,LAC, MAR,SEW	4 FEW,LAC
grasshopper sparrow	Ammodramus savannarum	3	4 AGS,BOW	5 AGS,BOW
gray flycatcher	Empidonax wrightii	2	4 DRI,JUN,PJN	0 PJN EAST OF SIERRAS
gray vireo	Vireo vicinior	2	5 JUN,MCH,PJN	5 JUN,MCH,PJN
great egret	Casmerodius albus	3	4 FEW,MRI,VRI	5 CRP,FEW,LAC, PAS,SEW
greater yellowlegs	Tringa melanoleuca	3	4 FEW,LAC,SEW	0 NONE
green-backed heron	Butorides striatus	2	4 FEW,MRI,VRI	5 FEW
green-tailed towhee	Piplo chlorurus	2	4 MCH,MCP,SGB, EARLY SERAL OF CONIFER	4 MCH,MCP,SGB, EARLY SERAL OF CONIFER
Hammond's flycatcher	Empidonax hammondii	1	4 MOST TREES	5 RFR,SMC,WFR
hermit thrush	Catharus guttatus	3	3 MRI,URI,MOST CONIFERS	4 MHW,MRI,RFR, WFR
hermit warbler	Dendroica occidentalis	3	4 MOST TREES	4 CONIFERS
herring gull	Larus argentatus	4	4 EST,FEW,LAC, MAR,SEW	0 NONE
hooded oriole	Icterus cucullatus	2	4 VRI	5 VRI
horned lark	Eremophila alpestris	5	2 AGS	2 AGS
house wren	Troglodytes aedon	3	3 MOST TREES	3 BOW,COW,DRI, MHW,MRI,VOW, VRI
indigo bunting	Passerina cyanea	1	4 MRI,VRI	4 MRI,VRI
lark sparrow	Chondestes grammacus	4	3 AGS,ASC,BOW, MCH	3 AGS,ASC,BOW, MCH
lazuli bunting	Passerina amoena	1	3 BOW,COW,MCH, MHW,MRI,VRI, CONIF.EDGES	3 BOW,COW,MCH, MHW,MRI,VRI, CONIF.EDGES
least bittern	Ixobrychus exilis	2	5 FEW,MRI,VRI	5 FEW
least sandpiper	Calidris minutilla	4	3 FEW,LAC,SEW	0 NONE
least tern	Sterna antillarum	1	3 EST,LAC,MAR	5 EST,LAC,MAR
lesser golden plover	Pluvialis dominica	5	5 CRP,FEW,LAC, SEW	0 NONE
lesser goldfinch	Carduelis psaltria	4	3 BOW,COW,MCH, MHW,MRI,VOW, VRI,CON/EDG	3 BOW,COW,MCH, MHW,MRI,VOW, VRI,CON/EDG
lesser nighthawk	Chordeiles acutipennis	1	3 AGS,ASC,CRP	3 OPEN,DESERT, GRAVEL
lesser yellowlegs	Tringa flavipes	2	4 FEW,LAC,SEW	0 NONE
Lincoln's sparrow	Melospiza lincolnii	3	3 MCH,FEW,VRI, WTM	0 NONE

Common Name	Scientific Name	Tropical Dependence[1]	Use of Public Land Migration[2]	Nesting[2]
loggerhead shrike	Lanius ludovicianus	4	3 AGS,ASC,BOP, BOW,MCH	3 AGS,ASC,BOW, JST,JUN,PJN
long-billed curlew	Numenius americanus	4	3 AGS,ASC,CRP	0 NONE
long-billed dowitcher	Limnodromus scolopaceus	3	3 FEW,LAC,PAS, SEW,WTM	0 NONE
MacGillivray's warbler	Oporonis tolmiei	1	3 COW,MCH,MHW, MRI,VRI,EARLY /SER/CONIF	4 COW,MCH,MHW, MRI,EARLY SERAL CONIFER
marbled godwit	Limosa fedoa	4	4 FEW,LAC,SEW	0 NONE
marsh wren	Cistothorus palustris	4	4 FEW,WTM	4 FEW
mountain bluebird	Sialis currucoides	4	3 AGS,ASC	0 SCN
mountain plover	Charadrius montanus	5	2 AGS,ASC,CRP	0 NONE
Nashville warbler	Vermivora ruficapilla	2	4 JPN,MCH,MHW, MRI,PPN,VRI	4 JPN,MCH,MHW, PPN
northern oriole	Icterus galbula	2	3 BOW,COW,MHW, MRI,VOW,VRI	3 BOW,COW,MHW, MRI,VOW,VRI
northern rough-winged swallow	Stelgidopterx serripennis	2	3 MOST	4 OPEN
olive-sided flycatcher	Contopus borealis	1	3 MRI,VRI,MOST TREES	4 MANY CONIFERS
orange-crowned warbler	Vermivora celata	3	3 COW,MCH,MHW, MRI,VRI	4 COW,MCH,MHW
pacific-slope flycatcher	Empidonax difficilis	1	3 MOST TREES	4 COW,MCH,MHW, RFR,VRI,WFR
pectoral sandpiper	Calidris melanotos	1	4 LAC	0 NONE
phainopepla	Phainopepla nitens	2	3 BOP,BOW	3 BOW,JST,MCH
pied-billed grebe	Podilymbus podiceps	5	3 EST,LAC,MAR	5 FEW,LAC
pine siskin	Carduelis pinus	4	3 MOST TREES	4 HIGHER CONIFERS
purple martin	Progne subis	1	5 MOST	5 LARGE TREES
red knot	Calidris canutus	2	4 FEW,LAC,MAR, SEW	0 NONE
red-naped sapsucker	Sphyrapicus nuchalis	2	4 TREES	0 ASP,MRI
red-necked phalarope	Phalaropus lobatus	1	3 FEW,LAC,MAR	0 NONE
red-winged blackbird	Agelaius phoeniceus	5	3 AGS,ASC,FEW, MRI,VRI,WTM	4 CRP,FEW,MRI, PAS,VRI,WTM
ring-billed gull	Larus delawarensis	4	3 EST,FEW,LAC, MAR,SEW	0 NONE
royal tern	Sterna maxima	1	5 EST,MAR	0 NONE
ruby-crowned kinglet	Regulus calendula	4	3 MOST TREES	4 LPN,RFR,WFR
ruddy turnstone	Arenaria interpres	3	3 FEW,LAC,MAR, SEW	0 NONE
rufous hummingbird	Selasphorus rufus	1	3 AGS,ASC,COW, DRI,MCH,VRI	0 NONE
sage sparrow	Amphispiza belli	4	4 ASC,SGB,MCH	3 ASC,SGB,MCH
sage thrasher	Oreoscoptes montanus	3	4 DSC,SGB	5 DSC,SGB
sanderling	Calidris alba	4	3 FEW,LAC,MAR, SEW	0 NONE
sandhill crane	Grus canadensis	3	3 AGS,CRP,FEW, LAC	0 NONE
sevannah sparrow	Passerculus sandwichensis	4	3 AGS,ASC,WTM	5 CRP,PGS,PAS, WTM
Say's phoebe	Sayornis saya	3	3 AGS,ASC,BOP, BOW,MCH	3 OPEN,ARID
Scott's oriole	Icterus parisorum	2	4 JST,JUN,PJN	4 JST,JUN,PJN
semipalmated plover	Charadrius semipalmatus	3	4 FEW,LAC,SEW	0 NONE
semipalmated sandpiper	Calidris pusilla	2	4 FEW,LAC,SEW	0 NONE
short-billed dowitcher	Limnodromus griseus	3	3 FEW,LAC,PAS, SEW,WTM	0 NONE
short-eared owl	Asio flammeus	4	4 AGS,ASC,CRP	5 AGS,ASC,FEW, WTM
snowy egret	Egretta thula	3	4 FEW,MRI,VRI	5 FEW,LAC,SEW
snowy plover	Charadrius alexandrinus	3	4 FEW,LAC,SEW	4 FEW,LAC
solitary sandpiper	Tringa solitaria	1	4 FEW,LAC,SEW	0 NONE
solitary vireo	Vireo solitarius	2	4 JPN,JUN,MCH, MHW,MRI,PJN, SMC,VRI,WFR	4 JPN,JUN,MCH, MHW,MRI,PJN, SMC,VRI,WFR
spotted sandpiper	Actitis macularia	3	3 LAC,RIV	4 LAC,RIV

Common Name	Scientific Name	Tropical Dependence[1]	Use of Public Land Migration[2]	Nesting[2]
stilt sandpiper	Calidris himantopus	2	4 FEW,LAC,PAS, SEW,WTM	0 NONE
summer tanager	Piranga rubra	1	4 VRI	4 VRI
Swainson's thrush	Catharus ustulatus	1	3 MRI,VRI	4 MHW,MRI,RFR, WFR
Thayer's gull	Larus thayeri	5	5 EST,FEW,LAC, MAR,SEW	0 NONE
Townsend's solitaire	Myadestes townsendi	5	3 MOST CONIFERS	4 JPN,LPN,RFR, SCN,SMC,WFR
Townsend's warbler	Dendroica townsendi	3	3 MOST TREES	4 CONIFERS
tree swallow	Tachycineta bicolor	3	3 MOST	4 MANY TREE DOM
Vaux's swift	Chaetura vauxi	1	4 MOST	4 FORESTS,FORE STS/OPEN
vermilion flycatcher	Pyrocephalus rubinus	2	5 LAC,VRI	5 DRI,VRI
vesper sparrow	Pooecetes gramineus	3	4 AGS,BOW,VRI	0 NONE
violet-green swallow	Tachycineta thalassina	2	3 MOST	4 MANY TREES DOMINANT
warbling vireo	Vireo gilvus	1	3 MRI,VRI	3 MRI,VRI
western bluebird	Sialia mexicana	4	3 AGS,BOP,BOW, MRI,VRI	3 OPEN TREES
western grebe	Aechmophorus occidentalis	4	3 EST,LAC,MAR	5 FEW
western kingbird	Tyrannus verticalis	1	3 AGS,ASC,BOW, MCH	3 BOW,DRI,VOW, VRI
western sandpiper	Calidris mauri	4	3 FEW,LAC,SEW	0 NONE
western tanager	Piranga ludoviciana	2	3 BOP,COW,PJN, MHW,VRI,OPEN CONIFER	3 BOP,COW,PJN, MHW,OPEN CONIFER
western wood-pewee	Contopus sordidulus	1	3 BOW,MCH,VRI	3 MANY TREES & CONIFERS
whimbrel	Numenius phaeopus	3	4 FEW,LAC,SEW	0 NONE
white-crowned sparrow	Zonotrichia leucophrys	4	3 BOP,BOW,COW, MCH,MRI,VRI	0 NONE
white-faced ibis	Plegadis chihi	2	4 FEW,MRI,VRI	5 FEW,LAC
white-throated swift	Aeronautes saxatalis	2	3 MOST	4 FOREST/OPEN
willet	Catoptrophorus semipalmatus	4	4 FEW,LAC,SEW	0 NONE
Williamson's sapsucker	Sphyrapicus thyroideus	4	4 TREES	5 MOST MID TO HIGH CANOPY
willow flycatcher	Empidonax traillii	1	4 MOST TREES BELOW CONIFERS	4 MRI,VRI
Wilson's phalarope	Phalaropus tricolor	1	3 FEW,LAC	5 FEW,LAC
Wilson's warbler	Wilsonia pusilla	1	3 COW,MRI,WTM, VRI	4 COW,MRI,WTM
yellow warbler	Dendroica petechia	2	4 MRI,VRI	4 MRI,VRI
yellow-billed cuckoo	Coccyzus americanus	1	5 VRI	5 VRI
yellow-breasted chat	Icteria virens	1	4 VRI	4 VRI
yellow-headed blackbird	Xanthocephalus xanthocephalus	2	3 FEW	4 FEW
yellow-rumped warbler	Dendroica coronata	3	3 MOST TREES	4 CONIFERS

[1] Tropical Dependence Code (percent of winter range south of the United States): 1, 100%; 2, 75-99%; 3, 50-74%; 4, 25-49%; 5, 5-24%.

[2] Importance Code (frequency of occurrence on public land): 1, only on public land; 2, mostly; 3, commonly; 4, uncommonly; 5, rarely. Habitat codes are defined in Appendix B-1.

Appendix B-3 Sensitive Plants

SENSITIVE PLANT SPECIES IN THE CALIENTE RESOURCE AREA*

COMMON NAME	GENUS	SPECIES	SUBSPECIES	VARIETY	STATUS[1] FED	CA	CNPS	OCC[2]	MGMT AREA[3] C	V	S	HABITAT[4]
ADOBE SANICLE	SANICULA	MARITIMA			FC2	CR	1B	S	C			VFGRS,MEDWS
ALKALI MARIPOSA LILY	CALOCHORTUS	STRIATUS			FC2		1B	K		V	S	CHSCR,MEDWS
APHANISMA	APHANISMA	BLITOIDES			FC2		3	L	C			CBSCR,COSCR
ARROYO DE LA CRUZ MANZANITA	ARCTOSTAPHYLOS	CRUZENSIS			FC2		1B	S	C			CHPRL,COSCR, VFGRS,BUFRS, CCFRS
ARROYO DE LA CRUZ MARIPOSA LILY	CALOCHORTUS	CLAVATUS	RECURVIFOLIUS		FC2		1B	S	C			CBSCR,CHPRL
BAKERSFIELD CACTUS	OPUNTIA	BASILARIS	TRELEASEI		FE	CE	1B	S		V	S	CHSCR,VFGRS
BAKERSFIELD SALTBUSH	ATRIPLEX	TULARENSIS			FC2	CE	1B	K		V		CHSCR
BEACH LAYIA	LAYIA	CARNOSA			FC1	CE	1B	L	C			CODNS
BEACH SPECTACLEPOD	DITHYREA	MARITIMA			FC2	CT	1B	K	C			CODNS
BLACK-FLOWERED FIGWORT	SCROPHULARIA	ATRATA			FC2		3	S	C			CCFRS,CHPRL, CODNS,COSCR
BRANCHING BEACH ASTER	CORETHROGYNE	LEUCOPHYLLA					4	K	C			CODNS,CCFRS
BRAUNTON'S MILK VETCH	ASTRAGALUS	BRAUNTONII			FC2		1B	L			S	CCFRS,CHPRL, COSCR,VFGRS
BREEDLOVE'S BUCKWHEAT	ERIOGONUM	BREEDLOVEI		BREEDLOVEI	FC2 ST	ST	1B ST	S			S	UCFRS
BREWER'S SPINEFLOWER	CHORIZANTHE	BREWERI			FC3C		1B	S	C			COSCR,CMWLD, CHPRL
CALICO MONKEYFLOWER	MIMULUS	PICTUS					1B	K		V	S	CMWLD,BUFRS
CALIFORNIA JEWELFLOWER	CAULANTHUS	CALIFORNICUS			FE	CE	1B	K		V		CHSCR,VFGRS, PJWLD
CAMATTA CANYON AMOLE	CHLOROGALUM	PURPUREUM		REDUCTUM	FC1	CR	1B	K	C			CMWLD
CARMEL VALLEY BUSHMALLOW	MALACOTHAMNUS	PALMERI		INVOLUCRATUS	FC2		1B	S	C			CMWLD
CARMEL VALLEY MALACOTHRIX	MALACOTHRIX	SAXATILIS		ARACHNOIDEA	FC2		1B	L	C			CHPRL
CHARLOTTE'S PHACELIA	PHACELIA	NASHIANA					1B	K			S	JTWLD,PJWLD, MDSCR
CHORRO CREEK BOG THISTLE	CIRSIUM	FONTINALE		OBISPOENSE	FC2		1B	S	C			CHPRL,CMWLD
COAST WALLFLOWER	ERYSIMUM	AMMOPHILUM			FC2		4	L	C			CODNS
COMANCHE POINT LAYIA	LAYIA	LEUCOPAPPA			FC2		1B	S		V		CHSCR,VFGRS
COMPACT COBWEB THISTLE	CIRSIUM	OCCIDENTALE		COMPACTUM	FC2		1B	S	C			CHPRL,CODNS, COPRR,COSCR
CONEJO BUCKWHEAT	ERIOGONUM	CROCATUM			FC2	CR	1B	L	C			CHPRL,COSCR, VFGRS
CONEJO DUDLEYA	DUDLEYA	PARVA			FC1		1B	S	C			COSCR,VFGRS
CONTRA COSTA GOLDFIELDS	LASTHENIA	CONJUGENS			FC1		1B	L	C			VFGRS,VNPLS
COTTON-FLOWERED BUCKWHEAT	ERIOGONUM	GOSSYPINUM			FC3C		4	K		V		VFGRS
CRISP MONARDELLA	MONARDELLA	CRISPA			FC2		1B	K	C			CODNS
CROWNED MUILLA	MUILLA	CORONATA			FC3C		4	S			S	JTWLD,MDSCR, PJWLD
CUESTA PASS CHECKERBLOOM	SIDALCEA	HICKMANII	PARISHII		FC2	CR	1B	S	C			CHPRL,LCFRS

COMMON NAME	GENUS	SPECIES	SUBSPECIES	VARIETY	FED	CA	CNPS	OCC	C	V	S	HABITAT
DAVIDSON'S BUSHMALLOW	MALACOTHAMNUS	DAVIDSONII			FC2		1B	S	C			COSCR,RPWLD
DEDECKER'S CLOVER	TRIFOLIUM	DEDECKERAE					1B	S			S	PJWLD,UCFRS, SCFRS
DESERT CYMOPTERUS	CYMOPTERUS	DESERTICOLA			FC2		1B	L				MDSCR,JTWLD
DIAMOND-PETALED CALIFORNIA POPPY	ESCHSCHOLZIA	RHOMBIPETALA			FC2		1B	S	C	V		VFGRS
					ST	ST	ST					
DUDLEY'S LOUSEWORT	PEDICULARIS	DUDLEYI				CR	1B	S	C			CMPRL,VFGRS, NCFRS
DWARF GOLDENSTAR	BLOOMERIA	HUMILIS			FC2	CR	1B	L	C			CBSCR,CHPRL, VFGRS
FATHER CROWLEY'S LUPINE	LUPINUS	PADRE-CROWLEYI			FC2	CR	1B	L			S	GBSCR,RPFRS, UCFRS
FLAX-LIKE MONARDELLA	MONARDELLA	LINOIDES	OBLONGA		FC2		1B	S		V	S	UCFRS,LCFRS
FORKED FIDDLENECK	AMSINCKIA	FURCATA			FC2		1B	K		V		VFGRS
FT. TEJON WOOLLY SUNFLOWER	ERIOPHYLLUM	LANATUM		HALLII	FC2		1B	S	C	V		CMPRL
GAIRDNERS YAMPAH	PERIDERIDIA	GAIRDNERI	GAIRDNERI		FC2		1B	L	C			BUFRS,CHPRL
GAMBEL'S WATER CRESS	RORIPPA	GAMBELII			FC1	CT	1B	L	C			MSHSW
GAVIOTA TARPLANT	HEMIZONIA	INCRESCENS	VILLOSA		FC1	CE	1B	L	C			COSCR,VFGRS
GREEN'S TUCTORIA	TUCTORIA	GREENEI			FC1	CR	1B	K		V		VNPLS
HALL'S DAISY	ERIGERON	AEQUIFOLIUS			FC3C		1B	S			S	BUFRS,LCFRS/ ROCK OUTCROPS
HARDHAM'S BEDSTRAW	GALIUM	HARDHAMIAE			FC3C		1B	K	C			CCFRS
HARDHAM'S EVENING-PRIMROSE	CAMISSONIA	HARDHAMIAE			FC2		1B	S	C			CMWLD
HEARST'S CEANOTHUS	CEANOTHUS	HEARSTIORUM			FC2	CR	1B	S	C			CHPRL,COPRR
HEARST'S MANZANITA	ARCTOSTAPHYLOS	HOOKERI	HEARSTIORUM		FC2	CE	1B	S	C			COSCR,VFGRS, CHPRL
HEART-LEAVED SALTBUSH	ATRIPLEX	CORDULATA			FC2		3	K		V		CHSCR
HICKMAN'S ONION	ALLIUM	HICKMANII			FC1		1B	L	C			CCFRS,CHPRL
HISPID BIRD'S-BEAK	CORDYLANTHUS	MOLLIS	HISPIDUS		FC2		1B	S		V		MEDWS (ALK)
HOCKETT LAKES FAWN LILY	ERYTHRONIUM	GRANDIFLORUM	PUSATERII		FC3C		1B	S			S	UCFRS
HOCKETT MEADOWS LUPINE	LUPINUS	CULBERTSONII	CULBERTSONII		FC3C		1B	L	C			MEDWS
HOFFMAN'S SANICLE	SANICULA	HOFFMANNII			FC3C		4	K	C			COSCR,BUFRS
HOLLISTERIA	HOLLISTERIA	LANATA			FC2		4	K		V		CHSCR,VFGRS
HOOVER'S BUTTON CELERY	ERYNGIUM	ARISTULATUM		HOOVERI	FC2		4	L	C			UNKNOWN
HOOVER'S ERIASTRUM	ERIASTRUM	HOOVERI			FT		1B	K		V		CHSCR,VFGRS
HOOVER'S SPURGE	CHAMAESYCE	HOOVERI			FC1		1B	L		V		VNPLS
HOT SPRINGS FIMBRISTYLIS	FIMBRISTYLIS	SPADICEA			FC3B		2	S			S	MEDWS
INDIAN KNOB MOUNTAINBALM	ERIODICTYON	ALTISSIMUM			FC1	CE	1B	S	C			CHPRL
ISLAND WALLFLOWER	ERYSIMUM	INSULARE			FC2		1B	L	C			COONS
JARED'S PEPPER-GRASS	LEPIDIUM	JAREDII					4	K		V		VFGRS
JONES' LAYIA	LAYIA	JONESII			FC2		1B	S	C			CMPRL,VFGRS
KAWEAH BRODIAEA	BRODIAEA	INSIGNIS			FC2	CE	1B	K			S	CMWLD,VFGRS
KAWEAH MONKEYFLOWER	MIMULUS	NORRISII			FC3C		1B	K			S	CHPRL,CMWLD
KECK'S CHECKERBLOOM	SIDALCEA	KECKII			FC1		1A	L			S	CMWLD
KELSO CREEK MONKEYFLOWER	MIMULUS	SHEVOCKII			FC1		1B	K			S	JTWLD,PJWLD
KERN BUCKWHEAT	ERIOGONUM	KENNEDYI		PINICOLA	FC2		1B	S			S	PJWLD,CHPRL
KERN COUNTY LARKSPUR	DELPHINIUM	PURPUSII					4	K			S	CHPRL,CMWLD, PJWLD
KERN MALLOW	EREMALCHE	KERNENSIS			FE		1B	K		V		CHSCR,VFGRS

COMMON NAME	GENUS	SPECIES	SUBSPECIES	VARIETY	FED	CA	CNPS	OCC	C	V	S	HABITAT
KERN PLATEAU HORKELIA	HORKELIA	TULARENSIS			FC2		1B	L			S	UCFRS
KERN RIVER DAISY	ERIGERON	MULTICEPS			FC2		1B	S			S	MEDWS(XERIC)
KERNVILLE POPPY	ESCHSCHOLZIA	PROCERA			FC2		3	S		V	S	SANDY FLOODPLAIN
LA GRACIOSA THISTLE	CIRSIUM	LONCHOLEPIS			FC1	CT	1B	S	C			CODNS,MSHSW, RPFRS
LOMPOC YERBA SANTA	ERIODICTYON	CAPITATUM			FC1	CR	1B	S	C			CCFRS,CHPRL
LOST HILLS SALTBUSH	ATRIPLEX	VALLICOLA			FC2		1B	K		V		CHSCR
LYON'S PENTACHAETA	PENTACHAETA	LYONII			FC1	CE	1B	L		V		CHPRL,VFGRS
MARITIME CEANOTHUS	CEANOTHUS	MARITIMUS			FC2	CR	1B	S	C			CHPRL,VFGRS
MARSH SANDWORT	ARENARIA	PALUDICOLA			FC1	CE	1B	L	C			MSHSW
MONTEREY SPINEFLOWER	CHORIZANTHE	PUNGENS		PUNGENS	FC2		1B	L	C			CODNS
MORRO MANZANITA	ARCTOSTAPHYLOS	MORROENSIS			FC1		1B	S	C			CHPRL,CODNS
MOUSE BUCKWHEAT	ERIOGONUM	NUDUM		MURINUM	FC2		1B	K			S	CNPRL,VFGRS, CMWLD
MT. WHITNEY DRABA	DRABA	CRUCIATA		INTEGRIFOLIA	FC3C		1B	L			S	ALPBR
MUIR'S RAILLARDELLA	RAILLARDELLA	MUIRII					1B	K			S	CHPRL,UCFRS, LCFRS
NINE MILE CANYON PHACELIA	PHACELIA	NOVENMILLENSIS			FC2		1B	K			S	PJWLD,BUFRS, UCFRS
NIPOMO MESA LUPINE	LUPINUS	NIPOMENSIS			FC1	CE	1B	S	C			CODNS
NORTHERN SPLEENWORT	ASPLENIUM	SEPTENTRIONALE					2	L			S	LCFRS,UCFRS, SCFRS
OJAI FRITILLARY	FRITILLARIA	OJAIENSIS			FC2		1B	L	C			BUFRS,CHPRL
OLANCHA PEAK BUCKWHEAT	ERIOGOMUM	WRIGHTII		OLANCHENSE	FC3C		1B	L			S	SCFRS
ONE-AWNED SPINEFLOWER	CHORIZANTHE	RECTISPINA			FC2		1B	K	C			CHPRL,CMWLD
OVAL-LEAVED SNAPDRAGON	ANTIRRHINUM	OVATUM			FC2		1B	K		V		CMWLD,PJWLD, VFGRS
OWEN'S PEAK LOMATIUM	LOMATIUM	SHEVOCKII			FC2		1B	K			S	UCFRS,LCFRS
PARISH'S CHECKERBLOOM	SIDALCEA	HICKMANII	ANOMALA		FC2	CR	1B	S	C			
PISMO CLARKIA	CLARKIA	SPECIOSA	IMMACULATA		FC1	CR	1B	L	C		S	CHPRL,CMWLD
PIUTE CYPRESS	CUPRESSUS	NEVADENSIS					1B	K			S	CCFRS
PIUTE MTNS. JEWELFLOWER	STREPTANTHUS	CORDATUS		PIUTENSIS	FC2		1B	K			S	PJWLD,BUFRS, CCFRS
PIUTE MTNS. NAVARRETIA	NAVARRETIA	SETILOBA			FC1		1B	K			S	CMWLD,PJWLD, VFGRS
PRINGLES YAMPAH	PERIDERIDIA	PRINGLEI					4					CHPRL,CMWLD, COSCR
PURPLE MOUNTAIN PARSLEY	OREONAMA	PURPURASCENS			FC3C		1B	S			S	SCFRS,UCFRS
RAMSHAW MEADOWS ABRONIA	ABRONIA	ALPINA			FC1		1B	L			S	MEDWS
RECURVED LARKSPUR	DELPHINIUM	RECURVATUM			FC2		1B	K		V		CHSCR,VFGRS(ALK)
RED ROCK TARPLANT	HEMIZONIA	ARIDA			FC1	CR	1B	S			S	MDSCR
SALINAS VALLEY GOLDFIELDS	LASTHENIA	LEPTALEA			FC3C		4	S		V	S	CMWLD,VFGRS
SALT MARSH BIRD'S-BEAK	CORDYLANTHUS	MARITIMUS	MARITIMUS			CE	1B	L	C			MSHSW
SAN BENITO FRITILLARY	FRITILLARIA	VIRIDEA			FC2		1B	K	C			CHPRL
SAN BENITO THORNMINT	ACANTHOMINTHA	OBOVATA	OBOVATA			CE	4	L	C			CHPRL
SAN JOAQUIN VALLEY ORCUTT GRASS	ORCUTTIA	INAEQUALIS			FC1	CE	1B	K		V	S	VNPLS
SAN JOAQUIN WOOLY THREADS	LEMBERTI	CONGDONII			FE		1B	K		V	S	CHSCR,VFGRS
SAN LUIS MARIPOSA LILY	CALOCHORTUS	OBISPOENSIS			FC3C		1B	S	C			CHPRL,COSCR,

COMMON NAME	GENUS	SPECIES	SUBSPECIES	VARIETY	FED ST	CA ST	CNPS ST	OCC	C	V	S	HABITAT
												VFGRS
SAN LUIS OBISPO COUNTY LUPINE	LUPINUS	LUDOVICIANUS			FC2		1B	S	C			CHPRL,CMWLD
SAN LUIS OBISPO COUNTY MONARDELLA	MONARDELLA	UNDULATA		FRUTESCENS	FC2		1B	S	C			CODNS
SAN LUIS OBISPO SEDGE	CAREX	OBISPOENSIS			ST	ST	ST 1B	K	C			CCFRS,COPRR, CHPRL,COSCR
SAN LUIS SERPENTINE DUDLEYA	DUDLEYA	BETTINAE			FC3C		1B	K	C			COSCR
SANFORD'S ARROWHEAD	SAGITTARIA	SANFORDII			FC2		3	L			S	MSHSW
SANTA BARBARA JEWELFLOWER	CAULANTHUS	AMPLEXICAULIS		BARBARAE	FC2		1B	S	C			CCFRS,CMWLD
SANTA MARGARITA MANZANITA	ARCTOSTAPHYLOS	PILOSULA	PILOSULA		FC2		1B	S	C			CCFRS,CHPRL
SANTA SUSANA TARPLANT	HEMIZONIA	MINTHORNII			FC2	CR	1B	L	C			CHPRL,COSCR
SANTA YNEZ FALSE-LUPINE	THERMOPSIS	MACROPHYLLA		AGNINA	FC2	CR	1B	S	C			CHPRL
SCALLOPED MOONWORT	BOTRYCHIUM	CRENULATUM			FC2		4	L	C			BGFNS,MEDWS, MSHSW
SEASIDE BIRD'S-BEAK	CORDYLANTHUS	RIGIDUS	LITTORALIS		FC1	CE	1B	L	C			CCFRS,CHPRL, CMWLD,COSCR
SEQUOIA GOOSEBERRY	RIBES	TULARENSIS			FC2		1B	K			S	LCFRS
SHAG-BARK MANZANITA	ARCTOSTAPHYLOS	RUDIS			FC2		1B	K	C			COSCR,CHPRL
SHARSMITH'S STICKSEED	HACKELIA	SHARSMITHII					2	L	C			ALPBR,SCFRS
SHEVOCK'S MILK VETCH	ASTRAGALUS	SHEVOCKII			FC3C		1B	K			S	UCFRS
SHIRLEY MEADOWS MARIPOSA LILY	CALOCHORTUS	WESTONII			FC1		1B	L			S	LCFRS
SLOUGH THISTLE	CIRSIUM	CRASSICAULE			FC2		1B	S	S	V		MSHSW
SOFT-LEAVED INDIAN PAINTBRUSH	CASTILLEJA	MOLLIS			FC2		1B	S	C			CODNS
CALIENTE RESOURCE AREA												
COMMON NAME	GENUS	SPECIES	SUBSPECIES	VARIETY	FED ST	CA ST	CNPS ST	OCC	C	V	S	HABITAT
SOUTH COAST RANGE MORNING-GLORY	CALYSTEGIA	COLLINA	VENUSTA		FC2		3	L	C			UNKNOWN
SPANISH NEEDLE ONION	ALLIUM	SHEVOCKII					1B	K			S	ROCK OUTCROPS
SPINY-SEPALED BUTTON CELERY	ERYNGIUM	SPINOSEPALUM			FC2		1B	L		V	S	VNPLS
SPRINGVILLE CLARKIA	CLARKIA	SPRINGVILLENSIS			FC1	CE	1B	S			S	CHPRL,CMWLD
STINK BELLS	FRITILLARIA	AGRESTIS			FC3C		4	K		V		VFGRS,CMWLD
STRIPED ADOBE LILY	FRITILLARIA	STRIATA			FC2	CT	1B	K		V	S	CMWLD,VFGRS
SURF THISTLE	CIRSIUM	RHOTHOPHILUM			FC1	CT	1B	K	C			CODNS
TEMBLOR BUCKWHEAT	ERIOGONUM	TEMBLORENSE			FC2		4	S	C	V		VFGRS
THE NEEDLES BUCKWHEAT	ERIOGONUM	BREEDLOVEI		SHEVOCKII	FC3C		1B	K			S	PJWLD,UCFRS
TORO MANZANITA	ARCTOSTAPHYLOS	MONTEREYENSIS			FC2		1B	S	C			CHPRL,CMWLD, COSCR
TULARE PSEUDOBAHIA	PSEUDOBAHIA	PEIRSONII			FC1	CE	1B	S		V	S	VFGRS
TWISSELMANN'S BUCKWHEAT	ERIOGONUM	TWISSELMANNII			FC2	CR	1B	S			S	UCFRS
TWISSELMANN'S NEMACLADUS	NEMACLADUS	TWISSELMANNII			FC2	CR	1B	S			S	UCFRS
UNEXPECTED LARKSPUR	DELPHINIUM	INOPINUM			FC3C		1B	S			S	UCFRS(ROCKY SITES)
VASEK'S CLARKIA	CLARKIA	TEMBLORENSIS	CALIENTENSIS		FC2		1B	S		V		VFGRS
VENTURA MARSH MILK VETCH	ASTRAGALUS	PYCNOSTACHYUS		LANOSISSIMUS	FC1		1A	L	C			MSHSW(COASTAL SALT)
VERITY'S DUDLEYA	DUDLEYA	VERITYI			FC2		1B	S	C			CHPRL,CMWLD,

COMMON NAME	GENUS	SPECIES	SUBSPECIES	VARIETY	FED	CA	CNPS	OCC C	V	S	HABITAT COSCR
WALKER PASS MILK VETCH	ASTRAGALUS	ERTERRAE			FC2		1B	K		S	PJWLD
YOSEMITE LEWISIA	LEWISIA	DISEPALA					1B	M		S	LCFRS,PJWLD, UCFRS

*The names and status of plants listed as threatened or endangered by the US Fish & Wildlife Service were taken from the Federal Register. Additions, subtractions, and changes to this list will be made to reflect changes in status, as announced in future additions of the Federal Register. Modifications to this list that would result in significant impacts first must undergo NEPA analysis and public review.

[1]Status. Federal: FE, endangered; FT, threatened; FC1, candidate 1; FC2, candidate 2; FC3B, not a distinct taxon based on current knowledge, but may be reevaluated in the future; FC3, more abundant than originally thought.
State: CE, endangered; CT, threatened; CR, rare.

California Native Plant Society (CNPS): 1A, plants presumed extinct in California; 1B, plants rare, threatened, or endangered in California and elsewhere, 2, plants rare, threatened, or endangered in California, but more common elsewhere; 3, plants about which more information is needed; 4, plants of limited distribution.

[2]Occurrence on Public Land: S = suspected; K = known; L = low potential.

[3]Management Area: C = Coast; V = Valley; S = South Sierra

[4]Habitat: See Appendix B-2

HABITAT CODES AND DESCRIPTIONS MENTIONED IN THE TEXT FOR SENSITIVE PLANTS

California Native Plant Society Codes[1]	Wildlife Habitat Relationships	Codes[2]
ALPBR	Alpine boulder and rock field	ADS
BGFWS	Bogs and fens	WTM
BUFRS	Broadleaved upland forest	ASP,COW,MHC,MHW
CBSCR	Coastal bluff scrub (southern)	CSC
CCFRS	Closed-cone coniferous forest	CPC
CHPRRL	Chaparral	MCH
CHSCR	Chenopod scrub	ASC
CMWLD	Cismontane woodland	MHW
CODNS	Coastal dunes	CSC
COPRR	Coastal prairie	CSC
COSCR	Coastal scrub	CSC
GBSCR	Great Basin scrub	SGB
JTWLD	Joshua tree woodland	JST
LCFRS	Lower montane coniferous forest	MHC
MDSCR	Mojavean desert scrub	DSC
MEDWS	Meadows and seeps	WTM
MSHSW	Marshes and swamps	FEW
NCFRS	North coast coniferous forest	DFR,RDW
PJWLD	Pinyon and juniper woodlands	PJN,JUN
RPFRS	Riparian forests	VRI
RPWLD	Riparian woodlands	VRI
SCFRS	Subalpine coniferous forest	SCN
UCFRS	Upland montane coniferous forest	JPN,WFR
VFGRS	Valley and foothill grassland	AGS
VNPLS	Vernal pools	LAC,WTM

[1] Holland, 1986
[2] Mayer and Laudenslayer Jr. (eds), 1988

Appendix B-4 Noxious Weeds

NOXIOUS PLANT SPECIES WITHIN THE RESOURCE AREA[1]

Scientific Name	Common Name	Pest Rating[2]	Counties[3]
Acacia armata	kangaroothorn	B	SB
Acaena novae-zelandiae	biddy-biddy	A	SB
Aegilops cylindrica	jointed goatgrass	B	SB
Agropyron repens	quackgrass	B	SB,SLO,VEN
Alhagi maurorum	camelthorn	A	KER
Alternanthera philoxeroides	alligatorweed	A	KIN,TUL
Araujia sericofera	bladder flower	B	SB,VEN
Cardaria chalepensis	lens-podded hoarycress	B	SB,VEN,SLO,KER
C. draba	heart-podded hoarycress	B	SB,VEN,SLO,KER,KIN
C. pubescens	globe-podded hoarycress	B	VEN,KER,KIN
Carthamus baeticus	smooth distaff thistle	B	KER,VEN
C. lanatus	wooly distaff thistle	B	SLO
Centaurea calcitrapa	purple starthistle	B	SLO,SB,VEN
C. iberica	Iberian starthistle	A	SB
C. repens	Russian knapweed	B	SLO,SB,VEN,KER,KIN,TUL
Chondrilla juncea	skeletonweed	A	SLO,SB
Chorispora tenella	purple mustard	B	KIN,TUL,KER
Cirsium arvense	Canada thistle	B	SLO,SB,VEN,KER
C. ochrocentrum	yellowspine thistle	A	VEN
C. undulatum	wavyleaf thistle	A	SLO
Cucumis myriocarpus	paddy melon	B	KIN,TUL,SB
Cynara cardunculus	artichoke thistle	B	KIN,TUL,KER,SLO,SB,VEN
Cyperus esculentus	yellow nutsedge	B	KIN
C. rotundus	purple nutsedge	B	KIN,VEN
Euphorbia oblongata	oblong spurge	B	SLO
Gaura coccinea	scarlet gaura	B	VEN
G. odorata	scented gaura	B	SLO,SB,VEN
G. sinuata	wavyleaf gaura	B	SLO,SB,VEN
Gypsophila paniculata	baby's breath	B	SLO,SB,VEN,KER,KIN,TUL
Halogeton glomeratus	halogeton	A	KER,TUL
Helianthus ciliaris	blueweed	A	SLO,SB,VEN
Imperata brevifolia	satintail	B	SB
Lepidium latifolium	perennial peppergrass	B	SLO,KER,KIN,TUL
Linaria dalmatica	Dalmatian toadflax	A	SLO,SB,VEN,KER,TUL
Nothoscordum inodorum	false garlic	B	SLO,SB,VEN
Nymphaea mexicana	banana waterleaf	B	KIN
Onopordum acanthium	Scotch thistle	A	SB,VEN,KER,TUL
Physalis viscosa	grape groundcherry	B	SB,VEN
Polygonum sachalinense	giant knotweed	B	SLO
Salsola vermiculata	wormleaf salsola	A	SLO
Solanum carolinense	Carolina horsenettle	B	VEN
S. dimidiatum	Torrey's nightshade	A	KER,VEN
S. elaeagnifolium	white horsenettle	B	SLO,SB,VEN,KIN,TUL,KER
S. lanceolatum	lanceleaved nightshade	B	SLO,SB,VEN
S. marginatum	white margined nightshade	B	VEN
Sphaerophysa salsula	Austrian peaweed	A	KER,KIN
Stipa brachychaeta	puna grass	A	SB,VEN
Tagetes minuta	wild marigold	A	TUL

[1]Plants that occur within the boundaries of the Caliente Resource Area, but whose presence on public lands is not known. Source: Barbe, D.G. 1990. Noxious Weeds of California - Distribution Maps. California Department of Food and Agriculture.

[2]Pest Rating:

A = Eradication, containment, rejection, or other holding action at the state - county level. Quarantine interceptions to be rejected or treated at any point in the state.

B = Eradication, containment, control or other holding action at the discretion of the commissioner of the California Department of Food and Agriculture.

[3]Counties in which noxious plant species have been identified:

KER = Kern; KIN = Kings; SLO = San Luis Obispo; SB = Santa Barbara; TUL = Tulare; VEN = Ventura

Appendix B-5 Conservation Strategy

A Conservation Strategy for Threatened and Endangered Species
in the San Joaquin Valley

Background

Public land in the San Joaquin Valley provides important habitat for several federal and state listed plant and animal species. The Endangered Species Act of 1973 mandates that federal agencies, including the Bureau, carry out programs for the conservation of threatened and endangered species. Bureau policy, as stated in Bureau Manual Section 6840 and policy statements such as Fish and Wildlife 2000, further guides how Bureau lands will be managed to meet the mandate for conservation programs.

The Endangered Species Act also directs the U.S. Fish and Wildlife Service to develop Recovery Plans for threatened and endangered species. These Recovery Plans provide the strategy that all agencies and organizations can implement to ensure a coordinated and comprehensive approach to species conservation and recovery. While Recovery Plans were developed for the blunt-nosed leopard lizard and the San Joaquin kit fox in the early 1980's, efforts to update these plans and develop Recovery Plans for more recently listed plant and animal species have not been successful due to Fish and Wildlife Service budget and personnel limitations. In the absence of Recovery Plans or updated Recovery Plans, species experts, which included representatives from the California Department of Fish and Game, U.S. Fish and Wildlife Service, California Energy Commission, The Nature Conservancy, California Department of Water Resources, California State University Stanislaus and the Bureau, cooperatively developed a comprehensive and coordinated strategy for endangered species management for the San Joaquin Valley. The formulation of this strategy included biologic, socioeconomic and political considerations, and is believed by species experts to meet the biological requirements of the listed species and their habitats. This strategy and the basis for this strategy is documented in detail in a paper entitled "San Joaquin Valley Bioregional Planning - Biological Technical Committee."

Until such time as Recovery Plans are written or updated for the San Joaquin Valley species, the Bureau will use the interagency conservation strategy as a guide for the Bureau's endangered species conservation program in the San Joaquin Valley. The Bureau also views the interagency strategy as the likely strategy that will be incorporated into the U.S. Fish and Wildlife Service's Recovery Plans.

Interagency Conservation Strategy

The foundation of the interagency conservation strategy is a system of reserves and connecting corridors. Through assessments of remaining natural land habitats, a reserve system was developed to conserve the best remaining habitats of the San Joaquin Valley natural communities. Several large keystone reserves, several small specialty reserves, and connecting corridors linking many of the reserves have been proposed. The large reserves are intended to maintain and conserve multiple plant and animal listed species as a natural community, while the small reserves are designed to conserve a particular species or unique natural feature. These reserves would be managed for long-term conservation of the listed plants and animals, and the natural communities on which they depend, but may allow for a variety of land uses managed in a compatible manner. Both large and small reserves are necessary to conserve the Valley's biological resources.

A reserve system map has been developed that identifies the keystone reserves, small specialty reserves, and connecting corridors. The area approximates the San Joaquin biological region identified by the California Biodiversity Executive Council[1].

Reserves include both large, multi-species reserves and small specialty reserves. These areas would be managed *primarily* for listed plants and animals. While other compatible resource uses could occur, they would be discouraged to maintain habitat quality and species' populations. Management of the reserves would be assured by fee acquisition, by Federal, State, or local agencies, chartered conservation organizations, conservation easements, or long-term cooperative agreements with existing landowners. Emphasis is to maintain a certain percentage of the native lands as high quality habitat and rehabilitate non-native lands as they become available for purchase, easement, or agreement. A threshold for habitat disturbance from energy mineral development, roads and existing facilities would be established. Compensation of new habitat disturbance within the threshold would be at another standard rate for uses that are considered permanent habitat loss and at a standard rate for temporary habitat loss. Currently, the compensation rate is 3:1 for permanent habitat loss and 1.1:1 for temporary habitat loss.

Corridors and connectors are comprised of native lands and agricultural lands to be managed for maintaining interchange and gene flow between the primary reserves and for maintaining supplemental populations between reserves. Emphasis is to maintain a certain percentage of native lands as moderate to high quality habitat, and maintain a certain percentage of the agricultural lands in agricultural production or fallow. A certain percentage of these lands would be available for urban, industrial or other land uses that are considered permanent habitat loss. Land would be designed to maintain corridor integrity as extant habitat and for movements. Corridors would not be severed by permanent habitat loss from urban-industrial uses. All habitat loss would be compensated at a standard rate and compensation would be directed to the reserve areas. Currently the compensation rate is 3:1 for permanent habitat loss. Compensation could also be directed back to the corridor on a limited basis. Corridors would not normally be acquired by purchase, but would be subject to conservation easements and agreements. However, some parcels essential to maintain corridors or buffers may need to be purchased.

The native lands outside of the reserve and corridor system would not be considered part of the long-term conservation strategy. However, many of these areas may be valuable sources of plant and animal populations in the short-term. When such areas are identified for development, agency review, compensation and salvage of listed species would be considered. The native lands and occupied fallow agricultural lands would be subject to a standard habitat compensation ratio. Currently, the compensation rate is at 3:1 for permanent habitat loss. Compensation would be directed to the reserve areas or corridors.

---

[1] The California Biodiversity Executive Council was established by the August 14, 1991 Memorandum of Understanding between the California Resources Agency, Bureau of Land Management, California Department of Fish and Game, Forest Service, California Department of Forestry and Fire, U.S. Fish and Wildlife Service, California Department of Parks and Recreation, National Park Service, California State Lands Commission and the University of California. The Executive Council was established to develop guiding principles and policies, design a statewide strategy to conserve biological diversity and to coordinate implementation of this strategy through regional and local institutions.

Bureau Conservation Program

The endangered species conservation program described in this Resource Management Plan was designed to be consistent with the interagency conservation strategy.

Five of the reserve areas identified in the interagency conservation strategy contain public lands addressed in this Resource Management Plan. Public land in three of these areas are proposed for designation as Areas of Critical Environmental Concern (Carrizo, Goose Lake, Lokern). Public land in the remaining two reserve areas (Cuyama Valley and Buena Vista Valley) will be managed in a manner consistent with the interagency guidelines for reserve areas. The public lands in these five areas will be managed for the long-term conservation of the listed plants and animals and the natural communities on which they depend, but may allow for a variety of land uses managed in a compatible manner.

A majority of the remaining public lands within the Valley Management Area has been identified in the interagency conservation strategy as corridors. Public lands in these areas would be managed consistent with the guidelines specified in the interagency conservation strategy for corridors.

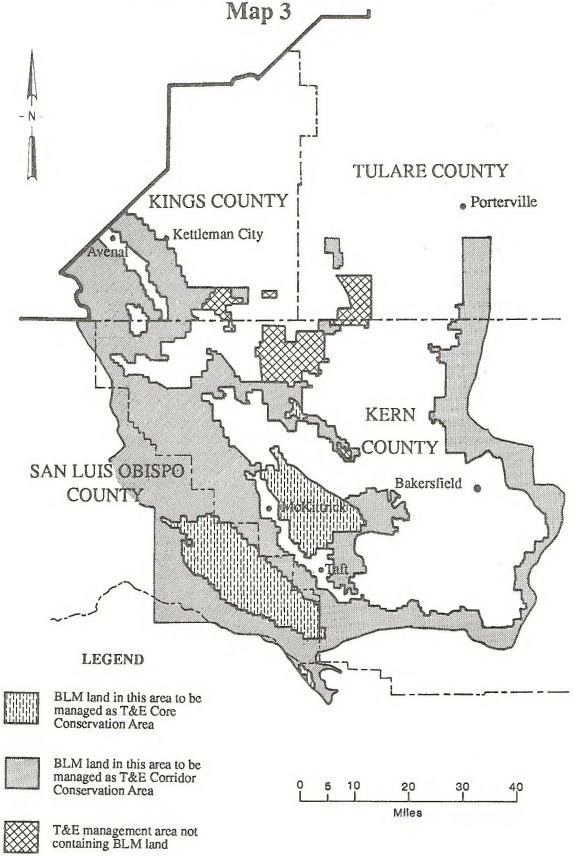
Public lands within the Valley Management Area specifically excluded from the reserve and corridor system includes lands near Freeborn Mountain, San Emigdio, Ventucopa, the upper elevations of the Caliente Range, Taylor Canyon, and the oil production areas from McKittrick south through Taft and Maricopa. Although these lands were not identified as part of the long term conservation strategy, they may still be valuable sources of plant and animal populations in the short term. When public land uses are proposed in these areas, mitigation measures to minimize impacts to listed species will still be considered. Such measures may include compensation for loss of habitat and salvage of listed species. Consistent with the interagency strategy, compensation would be directed to the reserve areas or corridors.

Bureau of Land Management

THREATENED AND ENDANGERED SPECIES CONSERVATION AREAS

Caliente Resource Area

Map 3



APPENDIX C - LANDS

Appendix C-1 Access Acquisitions

Appendix C-2 Communication Sites

Appendix C-3 Land Acquisition Criteria

Appendix C-4 Land Disposal

Appendix C-5 Right-of-Way Avoidance/Exclusion Areas

Appendix C-6 Compensation Acquisitions

Appendix C-7 Small Tract Patents

Appendix C-1 Proposed Access Acquisitions

The following list describes those general areas that were targeted for access acquisition in one or more alternatives. Administrative access is intended to facilitate Bureau resource protection, monitoring, and research efforts. Public access to these areas may remain restricted where the BLM is unable to adequately protect resources. Public access will be obtained as specified to increase the availability of lands to the public.

COAST MANAGEMENT AREA

- CYPRESS MTN

  Administrative access was identified to provide access for inventory and monitoring of the rare and unique plant communities as well as several sensitive plant species. Non-motorized public access was identified for the public's use and enjoyment of these resources.

- IRISH HILLS

  Administrative access was identified to provide access for inventory and monitoring of the coastal plant communities. Public access was identified for the public's use and enjoyment of these resources.

- POINT SAL

  Administrative vehicular access was identified to provide access for: inventory and monitoring of the cultural resources; threatened, endangered and sensitive plants and wildlife; marine invertebrates and mammals; ophiolite sequence; fragile soils; and scenic values. Pedestrian public access was identified for the public's use and enjoyment of these resources.

- RUSTY PEAK

  Administrative access was identified to provide access for inventory and monitoring of the serpentine chaparral, coastal live oak woodland, perennial grassland, and San Luis serpentine dudleya.

- TIERRA REDONDA

  Administrative access was identified to provide access for inventory and monitoring of the paleontological resources, the unique sand dune formation, limestone streamside habitat, coast live oak woodland, biodiversity, several rare and endemic plant taxa, scenic views and the type locality for the Tierra Redonda rock formation.

SOUTH SIERRA MANAGEMENT AREA

- BLUE RIDGE

  Administrative access was identified to provide access for inventory and monitoring of the critical condor habitat.

- CASE MOUNTAIN

  Administrative access was identified to provide access for inventory and monitoring of the Giant Sequoia groves, sensitive plant/animal species found in undisturbed habitats, cultural resources, and pristine riparian areas. Public access was identified for the public's use and enjoyment of these resources. Public access may require permits, to better monitor the use of the resources by the public.

- COW CANYON

  Administrative access was identified to provide access to the Pacific Crest National Scenic Trail for associated maintenance, proposed spring development and erosion control facilities, as well as inventory for special status plants and monitoring.

- HORSE/SAND CANYON

  Administrative access was identified to provide access for inventory and monitoring of cultural and paleontological resources.

- KER 311

  Administrative access was identified to provide access for inventory and monitoring of the cultural resources.

- LAMONT MEADOW
  Administrative access was identified to provide access for inventory and monitoring of the riparian habitat areas, cultural resources, pinyon woodland, and special status plant species.

- MILK RANCH PEAK
  Administrative access was identified to provide access for resource inventory and monitoring, and public access for the public's use and enjoyment.

- NELLIE'S NIPPLE
  Administrative access was identified to provide access for inventory and monitoring of the resources.

- OAK CREEK
  Administrative access was identified to provide access for inventory and monitoring of the resources.

- RED MOUNTAIN
  Administrative access was identified to provide access for inventory and monitoring of the resources.

- SPANISH NEEDLES
  Administrative access was identified to provide access for inventory and monitoring of the cultural resources.

VALLEY MANAGEMENT AREA

- BLUE STONE RIDGE
  Administrative access was identified to provide access for inventory and monitoring of the hollisteria (Hollisteria lanata), blunt-nosed leopard lizard, prairie falcon and the oval-leaved snapdragon.

- DUCK POND
  Administrative vehicular access was identified to provide access for inventory and monitoring of the alkali sink plant community and habitat for State and Federally listed plants and animals. Vehicular public access was identified to provide for the public's use and enjoyment of these resources.

- GOOSE LAKE
  Vehicular administrative access was identified to provide access for inventory and monitoring of the rare alkali sink vegetation, habitat for numerous shorebirds and raptors, and cultural resources. Vehicular public access was identified to provide for the public's use and enjoyment of these resources.

- HUBBARD HILL
  Administrative access was identified to provide access for inventory and monitoring of the resources.

Appendix C-1 (continued)

TYPES OF PROPOSED ACCESS ACQUISITIONS

	ALL*	ALT I	ALT II	ALT III	ALT IV	ALT V
COAST Management Area						
Cypress Mountain	A,P(NM)					
Irish Hills			A,P	A,P		
Point Sal	P(PD),A(V)					
Rusty Peak			A			
Tierra Redonda	A					
VALLEY Management Area						
Blue Stone	A					
Duck Pond	A(V),P(V)					
Goose Lake	A(V),P(V)					
Hubbard Hill	A					
SOUTH SIERRA Management Area						
Blue Ridge	A					
Case Mtn	A		P(PD)	P	P	P
Cow Canyon	A					
Horse/Sand Canyon			A	A	A	A
Ker 311	A					
Lamont Meadow	A					
Milk Ranch Peak	A			P	P	P
Nellie's Nipple	A					
Oak Creek	A					
Red Mountain	A					
Spanish Needles	A					

*All = Applies under all alternatives; A = Administrative Access; P = Public Access; NM = Non-Motorized Only; PD = Pedestrian Only; V = Vehicular & Non-Motorized

Appendix C-2 Communication Sites

EXISTING COMMUNICATION SITE RIGHTS-OF-WAY			
Site	Location	Holder	Serial No.
COAST MANAGEMENT AREA			
Heritage Ranch	T26R, R10E, Sec. 1, MDB&M	Sonic Cable	CA 14719
VALLEY MANAGEMENT AREA			
Caliente Mountain	T32S, R20E, Sec. 34, MDB&M	BLM	CA 9620
La Cima Hill	T22S, R18E, Sec. 20, MDB&M	Eastside Farms Kidds Comm	S 1579 S 3982
Maricopa	T11N, R24W, Sec. 15, MDB&M	USC&GS	R 2180
Midway Peak	T32S, R22E, Sec. 4, MDB&M	Metromedia	CA 12912
Morales Canyon	T32S, R20E, Sec. 31, MDB&M	Contel FCC	S 5699 PLO 3455 Wdl
Soda Lake	T31S, R19E, Sec. 14, MDB&M	AT&T	Sac 077189
Taft Mountain	T12N, R25W, Sec. 34, SBB&M	AT&T	LA 154858
SOUTH SIERRA MANAGEMENT AREA			
VABM Bear	T23S, R36E, Sec. 35, MDB&M T24S, R36E, Sec. 2, MDB&M	BLM Cal Trans Sequoia NF BLM USAF, Edwards	R 1940 CA 16180 CA 17467 R 1940 CA 20927
Cook Peak	T26S, R33E, Sec. 33, MDB&M	Contel Kidds Comm USGS	R 1531 CA 13445 CA 295354
Cyrus Canyon	T25S, R33E, Sec. 26, 35	So. Cal Edison	CA 14333
Rocky Point	T26S, R33E, Sec. 10	So Lake Prop Owner Kern Valley Amb	R 0091 R 1720

Appendix C-3 Land Acquisition Criteria

The guidelines for land acquisition identified in Chapter 3 for the alternative eventually selected provide primary direction. The following list of general land acquisition factors will be used to further evaluate potential parcels for acquisition by purchase, exchange, or other means. These factors are not listed in priority order. Parcels that meet any of these criteria may be suitable for acquisition.

1. Private lands within areas recommended as suitable for designation as wilderness or adjacent to such areas, where the acquisition would add to the manageability and scenic value of the unit.

2. Private lands needed for management of wild and scenic rivers and wild and scenic study rivers.

3. Threatened or endangered species habitat.

4. Aquatic, riparian, and wetland habitat areas (streams, rivers, lakes, ponds).

5. Land adjacent to and inholdings within Special Recreation Management Areas and high value recreation areas.

6. Lands within Areas of Critical Environmental Concern.

7. Potential national or historic trails.

8. Potential areas for cultural or natural history designation.

9. Critical/crucial game winter range or other important wildlife habitat.

10. Private land that would improve public access.

Appendix C-4 Land Disposal

Following is a list of the lands that have been identified as being available for disposal. Disposal may occur through exchange, sale, patent, or withdrawal. The criteria under which any given disposal could be disposed are described in Chapter 3. The reader should note that although a parcel may be available for disposal under several alternatives, the actual constraints upon disposal may vary from one alternative to another.

This list is broken up by management area, and then by county. Following this list is a discussion on the disposal of lands within National Cooperative Land and Wildlife Management Areas.

Caliente Resource Area

Lands Available for Disposal

Coast Management Area

Legal Description				Condor[1] Alt. 1[2]	Alt. 2	Alt. 3	Alt. 4	Alt. 5
County: San Luis Obispo			Meridian: S.B.B. & M.					
T. 11N.	R. 32W.	Sec. 11	SE¼		X	X	X	X
T. 11N.	R. 33W.	Sec. 8	N½NE¼			X	X	X
		Sec. 9	Lot 1, W½NW¼, NW¼NE¼, S½NE¼, SE¼			X	X	X
		Sec. 10	Lots 2 & 3, SW¼NW¼, SW¼, W½SE¼			X	X	X
		Sec. 15	NW¼NE¼, NW¼			X	X	X
		Sec. 16	NE¼			X	X	X
T. 11N.	R. 34W.	Sec. 2	Lot 1		X	X	X	X
T. 12N.	R. 32W.	Sec. 32	NE¼, N½SE¼, SE¼SE¼		X	X	X	X
T. 12N.	E. 34W.	Sec. 30	Lot 1		X	X	X	X
County: San Luis Obispo			Meridian: M.D.B. & M.					
T. 25S.	R. 10E.	Sec. 8	SW¼,SE¼		X	X	X	X
		Sec. 17	NE¼, NW¼, NE¼SW¼, W½SE¼		X	X	X	X
		Sec. 32	SE¼SW¼, SW¼SE¼		X	X		X
		Sec. 33	E½SE¼		X	X		X
		Sec. 34	SW¼		X	X		X
T. 25S.	R. 11E.	Sec. 31	Lots 2, 3, 6		X	X	X	X
T. 26S.	R. 8E.	Sec. 14	SW¼SE¼		X	X		X
T. 26S.	R. 9E.	Sec. 18	Lot 2		X	X	X	X
T. 26S.	R. 10E.	Sec. 1	Lots 1-3, 5-14, 16		X	X	X	X

Coast Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 2	Lots 1 & 2, S½NE¼			X	X		X
		Sec. 5	Lots 1 & 2, SW¼NW¼			X	X		X
		Sec. 12	Lots 1 & 8			X	X	X	X
		Sec. 33	Lots 5 & 6			X	X	X	X
T. 26S.	R. 11E.	Sec. 7	Lot 2 in NW¼, N½ Lot 1 in SW¼			X	X	X	X
		Sec. 17	S½SW¼			X	X	X	X
		Sec. 18	S½SE¼			X	X	X	X
		Sec. 19	N½NE¼			X	X	X	X
		Sec. 20	SE¼NE¼, W½NE¼, N½NW¼			X	X	X	X
T. 27S.	R. 10E.	Sec. 7	NE¼SW¼, SE¼					X	
		Sec. 8	W½SW¼					X	
		Sec. 13	Lots 1, 2, 4,			X	X	X	X
		Sec. 17	Lots 2-4			X	X	X	X
		Sec. 24	N½NE¼			X	X	X	X
		Sec. 26	SE¼NW¼			X	X	X	X
		Sec. 28	SE¼SW¼			X	X	X	X
		Sec. 32	SW¼NE¼			X	X	X	X
		Sec. 34	NW¼NW¼			X	X	X	X
T. 27S.	R. 11E.	Sec. 19	Lot 4			X	X	X	X
T. 27S.	R. 16E.	Sec. 5	Lot 16	E			X	X	X
		Sec. 9	SE¼SW¼, S½SE¼	E			X	X	X
T. 28S.	R. 11E.	Sec. 18	Lot 6			X	X	X	X
		Sec. 20	Lot 2			X	X	X	X
T. 28S.	R. 12E.	Sec. 31	Lots 3 & 6, SW¼SE¼				X	X	X
		Sec. 32	Lot 1				X	X	X
T. 28S.	R. 13E.	Sec. 19	E½SE¼				X	X	
		Sec. 28	S½SW¼				X	X	X
		Sec. 29	NW¼SW¼				X	X	
		Sec. 30	NE¼SE¼				X	X	
		Sec. 32	SE¼NE¼, N½SE¼				X	X	X

Coast Management Area

Legal Description			Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 33	Lots 1-4, N½, N½SW¼, N½SE¼			X	X	X
		Sec. 34	Lots 1-4, S½NE¼, NW¼, N½SW¼, N½SE¼			X	X	X
		Sec. 35	Lots 3 & 4, N½SE¼			X	X	X
T. 28S.	R. 15E.	Sec. 18	E½SE¼		X	X	X	X
		Sec. 19	E½NE¼		X	X	X	X
T. 29S.	R. 12E.	Sec. 31	Lot 3		X	X	X	X
		Sec. 32	E½NE¼			X	X	
		Sec. 33	Santa Clara Lode			X	X	
T. 29S.	R. 13E.	Sec. 1	Lots 2-4, SW¼NW¼, SE¼SW¼, SE¼			X	X	X
		Sec. 2	Lots 1, 3, 4, SW¼NW¼, W½SW¼, NW¼SE¼			X	X	X
		Sec. 3	Lots 1-4, S½NE¼, S½NW¼, SE¼			X	X	X
		Sec. 4	Lots 1, 2			X	X	X
			NW¼SE¼		X	X	X	X
		Sec. 11	S½NE¼, SE¼SW¼, N½SE¼			X	X	X
			NE¼NW¼		X	X	X	X
		Sec. 12	NE¼NW¼, W½SW¼, NE¼SE¼			X	X	X
		Sec. 14	S½NW¼, N½SW¼, SE¼SW¼, NW¼SE¼, S½SE¼		X	X	X	X
T. 29S.	R. 14E.	Sec. 7	Lot 2, NE¼,SE¼NW¼, SE¼SW¼, W½SE¼, SE¼SE¼		X	X	X	X
		Sec. 8	NW¼NE¼, NW¼		X	X	X	X
		Sec. 17	W½NW¼		X	X	X	X
		Sec. 18	Lot 3, NE¼, E½NW¼, NE¼SW¼		X	X	X	X
		Sec. 19	SE¼NE¼, E½SE¼		X	X	X	X
		Sec. 20	SW¼NW¼, W½SW¼, SE¼SW¼, SW¼SE¼		X	X	X	X
		Sec. 25	S½SW¼, W½SE¼		X	X	X	X

Coast Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 29	NE¼NW¼, S½NW¼, SW¼, W½SE¼			X	X	X	X
		Sec. 31	E½NE¼				X	X	
		Sec. 32	NE¼, N½NW¼, SE¼NW¼, NE¼SW¼, SW¼SW¼, SW¼SE¼			X	X	X	X
		Sec. 33	N½NW¼			X	X	X	X
		Sec. 35	S½NE¼			X	X	X	X
T. 29S.	R. 15 E.	Sec. 29	NE¼			X	X	X	X
		Sec. 31	Lot3, SE¼NW¼			X	X	X	X
		Sec. 33	N½NE¼, SE¼NE¼			X	X	X	X
T. 29S.	R. 16E.	Sec. 18	Lot 2, SE¼NE¼	E			X	X	
T. 30S.	R. 14E.	Sec. 1	Lots 22 & 23				X	X	
		Sec. 2	Lots 5, 7-10, W½SW¼, NE¼SW¼,				X		
		Sec. 3	Lots 5, 7-10 SW¼, SE¼				X		
		Sec. 4	SE¼				X		
		Sec. 13	Lots 4, 6				X	X	
		Sec. 14	Lots 1 & 2				X	X	
		Sec. 15	Lots 5, 12-14			X	X	X	X
		Sec. 21	Lots 2-4			X	X	X	X
T. 30S.	R. 15E.	Sec. 6	Lot 6				X	X	X
		Sec. 13	Lot 2			X	X	X	X
		Sec. 19	Lot 4				X	X	X
T. 30S.	R. 18E.	Sec. 31	Lot 3				X	X	X
T. 31S.	R. 12E.	Sec. 8	Lot 5, NE¼SW¼			X	X	X	X
T. 31S.	R. 14E.	Sec. 31	Lot 1			X	X	X	X
T. 31S.	R. 15E.	Sec. 9	SE¼SE¼			X	X	X	X
		Sec. 14	SE¼NE¼, SE¼SE¼			X	X	X	X
		Sec. 22	NE¼NE¼			X	X	X	X
		Sec. 23	S½NE¼, NE¼NW¼, W½NW¼, E½SW¼, NW¼SE¼, E½SE¼			X	X	X	X
		Sec. 26	NE¼NW¼			X	X	X	X

Coast Management Area

		Legal Description		Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
T. 31S.	R. 17E.	Sec. 11	SW¼NE¼, SE¼, SW¼, S½NW¼, NW¼NW¼	E			X	X	
		Sec. 13	W½NW¼	E			X	X	
T. 31S.	R. 18E.	Sec. 19	Lot 2	E			X	X	
T. 32S.	R. 13E.	Sec. 36	Lot 1			X	X	X	X
T. 32S.	R. 14E.	Sec. 3	Lot 5			X	X	X	X
T. 32S.	R. 15E.	Sec. 13	N½SE¼, SE¼SE¼			X	X	X	X
		Sec. 24	NE¼NE¼			X	X	X	X
		Sec. 34	Lots 1 & 2			X	X	X	X
T. 32S.	R. 16E.	Sec. 3	Lots 13 & 14			X	X		X
			Lot 15			X	X	X	X
		Sec. 4	SW¼NE¼, S½NW¼, NE¼SE¼			X	X	X	X
		Sec. 5	Lots 2 & 3			X	X		X
		Sec. 7	Lot 1				X	X	
		Sec. 9	N½NE¼			X	X	X	X
		Sec. 10	NW¼NE¼, N½NW¼, SW¼NW¼			X	X	X	X
		Sec. 17	NE¼SE¼, W½SE¼, E½SW¼			X	X	X	X
		Sec. 18	Lots 3 & 4, SW¼NE¼, SE¼NW¼, NE¼SW¼, NW¼SE¼			X	X	X	X
		Sec. 19	Lot 1			X	X	X	X
		Sec. 20	SE¼NE¼, N½SE¼			X	X	X	X
		Sec. 21	SE¼NW¼, SE¼SW¼			X	X	X	X
		Sec. 22	NW¼SW¼			X	X	X	X
County: Santa Barbara			Meridian: S.B.B. & M.						
T. 3N.	R. 25W.	Sec. 2	Lot 1			X	X	X	X
T. 5N.	R. 31W.	Sec. 2	Lots 1-4, S½S½			X	X	X	X
		Sec. 7	NE¼SE¼, S½SE¼			X	X	X	X
T. 7N.	R. 29W.	Sec. 5	Lot 4			X	X	X	X
			SW¼NW¼			X	X	X	X
T. 7N.	R. 32W.	Sec. 19	Lots 6 & 8			X	X	X	X
		Sec. 20	NW¼NE¼			X	X	X	X

Coast Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 21	Lot 2			X	X	X	X
		Sec. 32	Lot 1			X	X	X	X
		Sec. 33	Lot 1			X	X	X	X
T. 7N.	R. 33W.	Sec. 1	Lots 3 & 4			X	X	X	X
		Sec. 2	Lot 2			X	X	X	X
		Sec. 4	Lot 3			X	X	X	X
		Sec. 8	Lot 2			X	X	X	X
		Sec. 15	Lot 1			X	X	X	X
		Sec. 24	N½S½			X	X	X	X
		Sec. 25	Lot 1			X	X	X	X
T. 8N.	R. 34W.	Sec. 26	Lot 1			X	X	X	X
		Sec. 34	Lot 3			X	X	X	X
T. 9N.	R. 32W.	Sec. 1	Lots 6, 7 & 8			X	X	X	X
		Sec. 2	Lots 5-8			X	X	X	X
		Sec. 3	Lot 1			X	X	X	X
T. 9N.	R. 33W.	Sec. 20	Lot 1			X	X	X	X
T. 10N.	R. 32W.	Sec. 11	Lot 1			X	X	X	X
		Sec. 13	Lots 1-7			X	X	X	X
		Sec. 15	Lots 1 & 2			X	X	X	X
		Sec. 23	Lot 1			X	X	X	X
		Sec. 24	Lots 5-15, SE¼NW¼			X	X	X	X
		Sec. 25	Lots 9-15			X	X	X	X
		Sec. 28	Lot 13			X	X	X	X
		Sec. 29	Lots 15-18			X	X	X	X
		Sec. 30	Lot 2			X	X	X	X
		Sec. 32	Lot 1			X	X	X	X
		Sec. 33	Lots 5-8			X	X	X	X
		Sec. 34	Lots 6 & 7			X	X	X	X
T. 11N.	R. 31W.	Sec. 20	SE¼NW¼, NW¼SE¼			X	X	X	X
		Sec. 21	NE¼, NW¼, NE¼SW¼, NW¼SE¼			X	X	X	X

Coast Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
County: Ventura			Meridian: S.B.B. & M.						
T. 3N.	R. 19W.	Sec. 11	NW¼NW¼, SE¼NW¼			X	X		X
		Sec. 12	NW¼NW¼			X	X		X
T. 3N.	R. 22W.	Sec. 7	Lots 1 & 2			X	X		X
		Sec. 8	Lots 2 & 4			X	X		X
		Sec. 17	Lot 1			X	X		X
		Sec. 18	Lot 2, SW¼NE¼			X	X		X
T. 3N.	R. 24W.	Sec. 3	Lot 6			X	X		X
		Sec. 11	SE¼NW¼			X	X		X
T. 4N.	R. 18W.	Sec. 2	Lot 1			X	X		X
		Sec. 4	Lot 1			X	X		X
		Sec. 6	Lot 6				X		X
		Sec. 8	Lot 4				X		X
		Sec. 18	Lots 3, 4, E½SW¼				X		X
T. 4N.	R. 19W.	Sec. 3	Lots 9, 10, SE¼SW¼				X		X
		Sec. 4	Lots 9, 10, NW¼SW¼				X		X
		Sec. 5	Lots 3, 6, 8, 9, W½ of Lot 7, SE¼SW¼, S½SE¼				X		X
		Sec. 6	Lots 26, 29-38, portion of Spring Valley extension (Lot 50) of MS 3217, and portion of Alamo extension (Lot 37) of MS 3217				X		X
		Sec. 9	NE¼NE¼, S½				X	X	X
		Sec. 11	NW¼SW¼				X	X	X
		Sec. 12	S½S½				X	X	X
		Sec. 13	E½SW¼, NW¼SE¼				X	X	X
		Sec. 14	SW¼NE¼, NE¼SE¼, NE¼SW¼				X	X	X
		Sec. 18	Lot 6			X	X	X	X
		Sec. 22	N½NW¼, NW¼NE¼				X	X	X
		Sec. 24	NE¼NE¼				X	X	X
T. 4N.	R. 20W.	Sec. 1	Lots 17, 18, 20, portion of Alamo extension (Lot 37) of MS 3217				X		X
		Sec. 26	Lots 1 & 2			X	X	X	X

Caliente Resource Area

Lands Available for Disposal

Valley Management Area

Legal Description				Condor[1]	Alt. 1[2]	Alt. 2	Alt. 3	Alt. 4	Alt. 5
County: Kern			Meridian: S.B.B. & M.						
T. 10N.	R. 19W.	Sec. 32	SW¼SW¼	C				X	
T. 10N.	R. 20W.	Sec. 4	S½S½	E			X		X
		Sec. 22	S½S½	E			X		X
		Sec. 27	E½W½	E			X		X
		Sec. 31	Lots 3-6, 10	E			X	X	X
		Sec. 32	Lot 1	E			X	X	X
T. 10N.	R. 21W.	Sec. 23	Lots 3, 4, 10	E			X	X	X
		Sec. 24	SW¼NE¼, NW¼	E			X	X	X
		Sec. 25	SE¼SW¼, SW¼SE¼	E			X	X	X
		Sec. 26	SW¼SW¼	E			X	X	X
		Sec. 27	SW¼	E			X	X	X
		Sec. 28	E½NW¼, SW¼, W½SE¼	E			X	X	X
		Sec. 29	W½NE¼, SE¼NW¼, SW¼	E			X	X	X
		Sec. 30	Lots 2-4, 6, SW¼NE¼, SE¼	E			X	X	X
		Sec. 31	Lots 3 & 4, NE¼, NE¼NW¼, SE¼SW¼	E			X	X	X
		Sec. 32	NE¼, E½NW¼, NW¼NW¼, NE¼SW¼, N½SE¼	E			X	X	X
		Sec. 33	SE¼NE¼, NW¼, N½SW¼, SW¼SW¼, NE¼SE¼	E			X	X	X
		Sec. 34	E½NE¼, NW¼, NW¼SW¼, NE¼SE¼	E			X	X	X
		Sec. 35	NW¼NW¼	E			X	X	X
T. 10N.	R. 22W.	Sec. 30	N½SE¼	E			X	X	X
		Sec. 31	Lot 2	E			X	X	X
		Sec. 32	NW¼SE¼, S½SE¼	E			X	X	X
		Sec. 33	SW¼NE¼	E			X	X	X
T. 10N.	R. 23W.	Sec. 4	Lots 1, 2, 4, N½S½, SW¼SW¼	E			X		X
		Sec. 5	SE¼	E			X		X
		Sec. 7	S½ Lot 2 of SW¼	E			X		X
		Sec. 8	SE¼NE¼	E			X	X	X
		Sec. 13	Lots 1 & 2	E			X	X	

Valley Management Area

		Legal Description		Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 24	Lot 2, SE¼SE¼	E			X	X	X
		Sec. 25	NW¼NW¼, SE¼SW¼	E			X	X	X
T. 10N.	R. 24W.	Sec. 1	SE¼SW¼	E			X		X
		Sec. 2	Lots 1-3, SW¼NW¼, NE¼SW¼, SW¼SW¼	E			X		X
		Sec. 10	SE¼NE¼, E½NW¼, SW¼NW¼, NE¼SW¼	E			X		X
		Sec. 11	E½SE¼	E			X		X
		Sec. 12	SE¼SW¼, SE¼SE¼	E			X		X
		Sec. 32	NW¼SW¼, S½SW¼	E			X	X	X
		Sec. 33	NW¼SW¼	E			X	X	X
T. 11N.	R. 20W.	Sec. 32	Lots 8 & 9	E			X		
T. 11N.	R. 23W.	Sec. 31	Lots 1 & 2 of NW¼, SW¼SE¼	E			X		X
		Sec. 32	SW¼NE¼, S½NW¼, S½SW¼, SW¼SE¼	E			X		X
		Sec. 33	S½NW¼, SW¼, W½SE¼	E			X		X
T. 11N.	R. 24W.	Sec. 9	All	E		X	X	X	X
		Sec. 35	SE¼NW¼, NW¼SE¼	E			X		X
County: Kern			Meridian: M.D.B.& M.						
T. 18S.	R. 24E.	Sec. 11	Lot 8			X	X	X	X
		Sec. 23	Lot 9			X	X	X	X
T. 18S.	R. 25E.	Sec. 8	Unnamed lot in SE¼SE¼			X	X	X	X
T. 20S.	R. 27E.	Sec. 4	N½NE¼, W½SE¼, E½E½SE¼				X	X	X
T. 21S.	R. 23E.	Sec. 32	Lot 5				X	X	X
T. 25S.	R. 16E.	Sec. 1	SE¼NW¼			X	X	X	X
		Sec. 12	NW¼NW¼				X		
		Sec. 14	S½SE¼				X		
		Sec. 27	Lot 2				X	X	X
T. 25S.	R. 17E.	Sec. 18	Lots 1-5, 9 & 10, SE¼NE¼, SE¼					X	
		Sec. 22	All					X	
		Sec. 23	NE¼SW¼, S½SW¼, S½SE¼					X	
		Sec. 24	NW¼					X	

Valley Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 25	W½NW¼, SW¼					X	
		Sec. 26	NE¼, NW¼					X	
		Sec. 27	E½NE¼, NW¼NE¼, NE¼NW¼					X	
		Sec. 28	N½NE¼, NE¼NW¼					X	
		Sec. 30	Lot 9				X	X	
		Sec. 31	Lot 10				X	X	X
T. 26S.	R. 17E.	Sec. 21	SE¼NW¼				X	X	X
		Sec. 26	SW¼, W½SE¼				X	X	X
		Sec. 27	E½SE¼				X	X	X
		Sec. 33	SE¼NE¼				X	X	X
		Sec. 34	N½NE¼, SW¼NW¼, SE¼				X	X	X
		Sec. 35	SW¼				X	X	X
T. 26S.	R. 18E.	Sec. 28	NE¼SE¼				X		X
T. 27S.	R. 18E.	Sec. 1	NW¼SW¼, SE¼SW¼, W½SE¼				X		X
		Sec. 2	SE¼SW¼				X		X
		Sec. 3	Lot 2				X		X
		Sec. 4	Lot 1				X		X
		Sec. 11	NE¼NW¼, E½SE¼				X		X
		Sec. 12	SW¼SW¼, SE¼NE¼				X		X
		Sec. 13	NW¼NW¼, S½N½				X		X
		Sec. 28	SW¼SW¼			X	X	X	X
		Sec. 33	NW¼NE¼			X	X	X	X
T. 27S.	R. 19E.	Sec. 30	Lots 9 & 10				X		X
		Sec. 29	S½NE¼				X		X
T. 27S.	R. 29E.	Sec. 22	Lot 2			X	X	X	X
		Sec. 26	Lots 1, 2, 3, 5, 6 & 7		X	X	X	X	X
T. 28S.	R. 18E.	Sec. 1	Lot 1, W½SE¼, E½SW¼				X	X	X
		Sec. 2	SE¼NE¼, E½SE¼				X	X	X
			SW¼NE¼, NW¼SW¼, NW¼SE¼			X	X	X	X

Valley Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
T. 28S.	R. 19E.	Sec. 6	Lot 2				X	X	X
		Sec. 7	Lot 4				X	X	X
		Sec. 11	Lot 5					X	
		Sec. 11	Lot 12				X		X
		Sec. 14	Lot 1				X		X
		Sec. 18	NW¼SE¼				X	X	X
		Sec. 22	S½NE¼, S½S½				X	X	X
		Sec. 23	S½SW¼				X		X
		Sec. 24	Lots 11-12				X		X
		Sec. 25	Lots 1, 5, & 12				X		X
		Sec. 26	SE¼NE¼, N½NW¼, SW¼NW¼				X		X
		Sec. 27	NW¼SE¼, S½SE¼				X		X
T. 28S.	R. 20E.	Sec. 30	Lots 3 & 4				X		X
T. 28S.	R. 27E.	Sec. 6	SE¼NE¼			X	X	X	X
T. 28S.	R. 29E.	Sec. 28	NW¼NE¼, W½				X	X	
		Sec. 34	S½N½, N½S½, SE¼SE¼				X	X	
T. 29S.	R. 19E.	Sec. 35	S½SW¼				X	X	X
T. 29S.	R. 20E.	Sec. 26	Lot 2, N½NW¼, SW¼NW¼				X		X
		Sec. 27	Lot 2				X		X
		Sec. 30	NW¼NE¼				X		X
		Sec. 33	Lot 5				X		X
		Sec. 34	NW¼NE¼				X		X
		Sec. 35	Lots 2, 5-7, S½SW¼, SW¼SE¼				X		X
T. 29S.	R. 21E.	Sec. 29	W½NW¼, SE¼NW¼, E½SE¼				X		X
		Sec. 30	N½NE¼				X		X
		Sec. 31	W½SW¼				X		X
		Sec. 33	N½SE¼, SE¼SE¼				X		X
T. 29S.	R. 29E.	Sec. 2	NW¼NE¼				X	X	X
		Sec. 6	NW¼NW¼				X	X	
T. 30S.	R. 20E.	Sec. 1	Lot 3, SE¼NW¼, NE¼SW¼, NW¼SE¼				X		X

Valley Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 2	SW¼NW¼				X		X
		Sec. 3	SE¼NE¼, NE¼SE¼				X		X
		Sec. 6	NE¼SW¼				X	X	X
T. 30S.	R. 21E.	Sec. 2	Lots 1-15, 19				X		X
		Sec. 3	Lots 1-6, S½NW¼, SW¼SW¼				X		X
		Sec. 4	Lots 1-5, S½NE¼, NW¼SE¼				X		X
		Sec. 5	Lots 2, 4 & 5				X		X
		Sec. 6	Lots 3,4,7,8				X		X
		Sec. 7	Lot 1				X		X
		Sec. 8	Lots 1-3				X		X
		Sec. 9	Lots 1-7, NE¼, E½NW¼, SW¼NW¼				X		X
		Sec. 10	E½NE¼, NW¼NW¼, S½NW¼				X		X
		Sec. 11	E½NE¼SW¼				X		X
		Sec. 18	Lots 5 & 9				X		X
T. 30S.	R. 22E.	Sec. 6	S½NE¼				X		X
		Sec. 18	E½NE¼				X		X
T. 32S.	R. 23E.	Sec. 28	All	E		X	X	X	X
T. 32S.	R. 24E.	Sec. 28	S½SW¼NE¼, S½SE¼NW¼, E½NW¼SW¼, NW¼SE¼			X	X	X	X
T. 32S.	R. 26E.	Sec. 20	SE¼			X	X	X	X
T. 32S.	R. 27E.	Sec. 24	Lot 1				X	X	X
County: Kings			Meridian: M.D.B. & M.						
T. 22S.	R. 16E.	Sec. 24	E½SW¼			X	X	X	X
T. 23S.	R. 16E.	Sec. 4	SW¼, S½SE¼				X	X	X
		Sec. 8	Lots 1, 2, 8, 12, 13				X	X	X
		Sec. 14	Lots 1, 4-12, 15, 16				X	X	X
		Sec. 18	All				X		X
		Sec. 20	Lots 5, 6, 12, 13				X	X	X

Valley Management Area

		Legal Description		Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 22	Lot 9, NW¼NW¼, SE¼NW¼, NW¼SE¼, Mineral Land				X	X	X
		Sec. 24	N½NW¼, S½SW¼, SE¼				X	X	X
		Sec. 26	Lots 1-3, 6				X	X	X
T. 23S.	R. 19E.	Sec. 4	Lot 3			X	X	X	X
T. 24S.	R. 16E.	Sec. 1	NE¼SW¼			X	X	X	X
		Sec. 12	NW¼NW¼, W½SW¼			X	X	X	X
		Sec. 24	NE¼NE¼			X	X	X	X
T. 24S.	R. 17E.	Sec. 28	SW¼NE¼, SE¼NW¼, SW¼, S½SE¼			X	X	X	X
		Sec. 30	Lots 3 & 4, NE¼NW¼, S½SE¼			X	X	X	X
		Sec. 32	All			X	X	X	X
		Sec. 33	SE¼SE¼			X	X	X	X
T. 24S.	R. 19E.	Sec. 29	SW¼				X		X
County: San Luis Obispo			Meridian: S.B.B. & M.						
T. 10N.	R. 24W.	Sec. 30	Lots 1 & 2 of SW¼,W½SE¼, SE¼SE¼				X	X	X
		Sec. 31	Lots 1 & 2 of NW¼, Lots 1 & 2 of SW¼, W½NE¼, SE¼				X	X	X
T. 10N.	R. 25W.	Sec. 25	SE¼SE¼				X	X	X
County: Santa Barbara			Meridian: S.B.B. & M.						
T. 7N.	R. 29W.	Sec. 27	E½NW¼			X	X	X	X
T. 8N.	R. 24W.	Sec. 6	Lots 5 & 6, SE¼SW¼				X		X
		Sec. 7	Lots 1-4, SW¼NE¼, E½W½				X		X
		Sec. 17	SE¼NW¼				X	X	X
T. 9N.	R. 24W.	Sec. 5	Lots 5-12, S½NE¼, S½NW¼, NW¼SW¼				X	X	X
		Sec. 6	Lots 3-6, 8, 13-15, 22-24, NE¼SE¼				X	X	X
		Sec. 7	Lots 1-4			X	X	X	X
		Sec. 7	Lot 10				X	X	X

Valley Management Area

		Legal Description		Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 19	Lots 7, 8, 17, 18, 20				X	X	X
		Sec. 19	Lot 19				X		X
		Sec. 20	NE¼SE¼				X	X	X
		Sec. 29	Lot 5, NE¼SW¼				X	X	X
		Sec. 30	Lots 5, 6, 10				X		X
		Sec. 30	Lots 7-9				X	X	X
		Sec. 31	Lots 3-6, 12-15				X		X
		Sec. 31	Lots 7-11, 16				X	X	X
		Sec. 32	Lot 1				X	X	X
		Sec. 33	Lots 3-5, W½ Lot 2				X	X	X
T. 9N.	R. 25W.	Sec. 1	Lot 1				X	X	X
		Sec. 2	Lot 4, SW¼NE¼, SE¼NW¼, W½SE¼, SE¼SE¼				X	X	
		Sec. 3	Lot 1				X	X	
		Sec. 5	SW¼SE¼				X	X	X
		Sec. 9	SE¼SE¼				X		X
		Sec. 10	S½SW¼				X		X
		Sec. 11	E½NE¼					X	
		Sec. 12	SW¼NW¼, N½SW¼, SE¼SW¼, W½SE¼					X	
		Sec. 14	SW¼NW¼				X		X
		Sec. 15	S½NE¼, NW¼NW¼, W½SW¼, N½SE¼, SW¼SE¼				X		X
		Sec. 16	S½SW¼			X	X		X
		Sec. 22	W½W½, SE¼SE¼				X		X
		Sec. 23	NE¼, S½NW¼, S½				X		
		Sec. 24	NW¼NW¼, NW¼SW¼, S½SW¼				X		
T. 9N.	R. 27W.	Sec. 2	Lots 2-4, SW¼NE¼, S½NW¼			X	X		X
T. 10N.	R. 25W.	Sec. 28	S½SW¼, SW¼SE¼				X	X	
		Sec. 29	SW¼NE¼, SE¼NW¼				X	X	

Valley Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 33	N½NE¼				X	X	
		Sec. 34	S½NW¼, N½S½, SE¼SE¼				X	X	
T. 10N.	R. 27W.	Sec. 27	S½SE¼			X	X		X
		Sec. 29	NW¼SE¼				X	X	X
T. 10N.	R. 28W.	Sec. 4	SW¼SE¼				X	X	X
		Sec. 5	Lot 2				X	X	X
		Sec. 9	NW¼NE¼, NE¼NW¼, S½NW¼, NW¼SW¼				X	X	X
		Sec. 15	NE¼SE¼, SW¼SE¼				X	X	X
T. 11N.	R. 29W.	Sec. 16	Lots 1 & 2			X	X	X	X
County: Ventura			Meridian: S.B.B. & M.						
T. 8N.	R. 24W.	Sec. 8	E½SW¼SE¼				X	X	X
		Sec. 17	NE¼SE¼NE¼, S½SE¼NE¼				X	X	X
T. 9N.	R. 24W.	Sec. 33	E½ Lot 2, Lots 1, 6, 7, 9				X	X	X

Caliente Resource Area

Lands Available for Disposal

South Sierra Management Area

Legal Description				Condor[1]	Alt. 1[2]	Alt. 2	Alt. 3	Alt. 4	Alt. 5
County: Kern			Meridian: S.B.B. & M.						
T. 9N.	R. 18W	Sec. 2	Lot 1	C				X	
T. 10N.	R. 15W.	Sec. 6	Lots 9-12		X				
T. 11N.	R. 15W.	Sec. 2	S½NE¼		X	X	X	X	X
		Sec. 3	Lots 3,4 S½NW¼		X	X	X		X
		Sec. 4	MS 2400			X	X		X
T. 11N.	R. 16W.	Sec. 14	SE¼			X	X	X	X
		Sec. 21	N½, N½SW¼, E½SW¼SW¼, SE¼SW¼, SE¼			X	X	X	X
		Sec. 22	All			X	X	X	X
		Sec. 23	All			X	X	X	X
		Sec. 24	All			X	X	X	X
T. 11N.	R. 17W.	Sec. 2	NE¼SW¼, NW¼SE¼	C				X	
T. 11N	R. 18W.	Sec. 35	Lot 1		X				
T. 12N.	R. 15W.	Sec. 32	Lot 6		X		X	X	X
			SE¼NE¼		X	X	X	X	X
		Sec. 34	SW¼SW¼		X	X	X		X
T. 12N.	R. 17W.	Sec. 28	Lot 5, NW¼SW¼,			X	X	X	X
			N½SE¼		X				
		Sec. 34	Lot 1, NW¼NE¼, NW¼SW¼, NW¼SE¼		X	X	X	X	X
County: Kern			Meridian: M.D.B.& M.						
T. 25S.	R. 29E.	Sec. 11	N½NE¼SE¼SE¼	C	X				
		Sec. 12	N½SW¼	C	X			X	
T. 25S.	R. 30E.	Sec. 6	Lot 1	C	X			X	
T. 25S.	R. 31E.	Sec. 30	NE¼NW¼SE¼	E	X		X	X	X
		Sec. 31	SE¼NW¼NE¼, E½NE¼NW¼NE¼	E	X		X	X	X
T. 25S.	R. 32E.	Sec. 35	Lots 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31		X	X	X	X	X

South Sierra Management Area

		Legal Description		Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
T. 25S.	R. 33E.	Sec. 15	Lots 11, 12, 32, 33, 34, 35, 36 & 41		X	X	X	X	X
		Sec. 16	W½SW¼NE¼SE¼		X				
		Sec. 21	SW¼NE¼NW¼NE¼, S½NW¼NW¼NE¼, NW¼SW¼NW¼NE¼, S½SW¼NW¼NE¼, W½SE¼NW¼NE¼, NE¼NE¼NE¼NW¼, S½NE¼NE¼NW¼, N½NW¼NE¼NW¼, SE¼SW¼NE¼NW¼, SE¼NE¼NW¼, NE¼NE¼NW¼NW¼, W½NW¼NW¼NW¼, SW¼NW¼NW¼, NE¼SE¼NW¼NW¼, S½SE¼NW¼NW¼, SE¼NE¼NE¼SE¼		X	X	X	X	X
		Sec. 23	NE¼SE¼		X	X	X		X
			S½SW¼		X				
		Sec. 26	N½NW¼		X				
		Sec. 28	SE¼, SW¼SW¼		X				
		Sec. 29	N½		X	X	X	X	X
		Sec. 30	Lot 1, NE¼NE¼, NW¼NE¼, SE¼NE¼		X	X	X	X	X
		Sec. 33	Lot 3		X				
		Sec. 35	N½SW¼			X	X	X	X
T. 25S.	R. 34E.	Sec. 35	E½NW¼NE¼NW¼, NE¼SW¼NE¼NW¼, NW¼NW¼NW¼NW¼, NW¼SE¼NW¼NW¼, SE¼NE¼SW¼NW¼, NE¼NW¼SE¼NW¼, SW¼SE¼SE¼NW¼			X	X	X	X
T. 25S.	R. 36E.	Sec. 19	NE¼SE¼		X				
		Sec. 20	NW¼SW¼		X				
		Sec. 21	S½NE¼NE¼, SW¼NE¼, NE¼SW¼, E½SW½SW¼		X				
		Sec. 22	E½NW¼NW¼, E½W½NW¼NW¼		X				
		Sec. 28	NW¼NW¼		X				
T. 25S.	R. 36E.	Sec. 30	Lot 2		X	X			
T. 26S.	R. 31E.	Sec. 19	Lots 1 & 2		X	X	X	X	X

South Sierra Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
T. 26S.	R. 32E.	Sec. 12	SE¼NW¼SE¼SW¼, NW¼SE¼SE¼SW¼, SE¼SE¼SE¼SW¼, SW¼SW¼NE¼SE¼, NE¼SE¼NE¼SE¼, NE¼NW¼SW¼SE¼		X	X	X	X	X
		Sec. 13	Lot 1				X	X	
			Lots 2, 4, 5, 6		X	X	X	X	X
		Sec. 15	N½NE¼NW¼NW¼, SE¼NE¼NW¼NW¼		X		X		
			S½NW¼NW¼NW¼, NE¼SW¼NW¼NW¼		X	X	X	X	X
			NE¼NE¼SW¼NW¼		X		X		
			NE¼NW¼SW¼NW¼		X	X	X	X	X
			S½SE¼SW¼NW¼, NE¼NE¼SW¼SW¼, W½NE¼SW¼SW¼, W½SW¼SW¼SW¼		X		X		
			SE¼SW¼SW¼SW¼, NE¼SE¼SW¼SW¼		X	X	X	X	X
		Sec. 16	N½NW¼SE¼NE¼, N½SE¼SE¼SE¼		X	X	X	X	X
T. 26S.	R. 33E.	Sec. 6	Lot 1, NW¼NE¼		X	X	X	X	X
		Sec. 7	Lots 3 & 4, E½SW¼, NW¼SE¼, S½SE¼				X	X	
		Sec. 18	Lots 1, 2, 3, & 4			X	X	X	X
			SE¼SW¼, N½NE¼SW¼, SE¼NE¼SW¼, NW¼SW¼NE¼SW¼, S½SW¼NE¼SW¼						
		Sec. 21	SW¼NW¼SE¼SE¼, NE¼SE¼SE¼SE¼, SW¼SE¼SE¼SE¼		X	X	X	X	X
			E½NE¼SE¼		X		X		X
		Sec. 25	NE¼NW¼		X				
		Sec. 29	W½NE¼SW¼, W½SE¼SW¼			X	X	X	X
		Sec. 31	SE¼NW¼SW¼					X	
		Sec. 32	W½NE¼NW¼, E½SW¼NW¼, W½SE¼NW¼, NW¼SW¼, SW¼SW¼			X	X	X	X

South Sierra Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 36	NE¼, NW¼NW¼, S½NW¼, SW¼, SE¼				X		
T. 26S.	R.34E.	Sec. 1	W½NE¼NW¼NW¼, W½SW¼NW¼NW¼, SE¼SW¼NW¼NW¼, NE¼SE¼NW¼NW¼, W½SE¼NW¼NW¼, NE¼SW½NW¼, E½NW¼SW¼NW¼, NW¼SW½SW½NW¼, E½SE¼SW¼NW¼			X	X	X	X
		Sec. 2	NE¼SE¼		X	X	X	X	X
		Sec. 8	W½SE¼		X	X	X	X	X
		Sec. 9	W½NW¼		X	X	X	X	X
		Sec. 23	E½NW¼, W½NE¼, SE¼NE¼, E½SE¼		X	X	X	X	X
		Sec. 24	SW¼NW¼, N½SW¼, W½SW¼SW¼SW¼, SE¼SW¼SW¼SW¼, SW¼SE¼SW¼SW¼, S½NE¼SW¼SW¼, NE¼SE¼SW¼SW¼, NW¼SW¼SE¼SW¼, SE¼SW¼SE¼SW¼, N½SE¼, SW¼NE¼SW¼SE¼, SE¼SW¼SW¼SE¼, NE¼SE¼SW¼SE¼, W½SE¼SW¼SE¼, SE¼SE¼, NW¼SW¼SW¼SE¼		X	X	X	X	X
		Sec. 28	SW¼NE¼		X		X	X	X
T. 26S.	R. 35E.	Sec. 3	Lots 5 & 6, N½SW¼, SE¼SW¼, S½SE¼			X	X	X	X
		Sec. 9	NE¼SE¼			X	X	X	X
T. 27S.	R. 30E.	Sec. 18	Lots 5 & 6		X	X	X	X	X
		Sec. 23	SE¼SW¼		X	X	X	X	X
		Sec. 24	SE¼NE¼		X	X	X	X	X
		Sec. 30	Lot 2, SE¼NW¼		X	X	X	X	X
		Sec. 32	NE¼SE¼		X	X	X	X	X
		Sec. 35	NE¼NE¼, SW¼NE¼, N½NW¼SE¼		X	X	X	X	X
T. 27S.	R. 32E.	Sec. 1	SE¼NE¼NE¼					X	
		Sec. 12	Lots 8, 9, 10, 11, 12, 13, 14, 15, 16		X		X	X	

South Sierra Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 26	Portion of Mineral Survey 695		X		X		
		Sec. 27	NE¼SW¼		X		X	X	
		Sec. 35	Portion of Mineral Survey 695				X		
T. 27S.	R. 33E.	Sec. 6	E½SW¼NE¼SE¼		X				
		Sec. 7	Lots 2, 7, 8, 9, 10, 11 & 12 NE¼NW¼		X	X	X	X	X
		Sec. 24	NW¼SW¼		X				
T. 27S.	R. 35E.	Sec. 5	SW¼NE¼NE¼, SE¼NW¼NE¼, NE¼SW¼NE¼, SE½NE¼		X	X	X	X	X
T. 28S.	R. 30E.	Sec. 2	S½SE¼NE¼			X	X	X	X
T. 28S.	R. 32E.	Sec. 12	SW¼NE¼, NE¼NW¼, SE¼NW¼, SE¼SW¼, SE¼SE¼		X		X	X	
T. 28S.	R. 33E.	Sec. 7	SE¼			X	X	X	X
		Sec. 8	All			X	X	X	X
		Sec. 19	SE¼		X				
T.28½S.	R. 32E.	Sec. 3	Lots 1-4			X	X	X	X
T.28½S.	R. 33E.	Sec. 5	Lots 1-4			X	X	X	X
T. 29S.	R. 29E.	Sec. 12	N½SW¼					X	
T. 29S.	R. 32E.	Sec. 4	Lot 2, SW¼, W½SE¼			X	X	X	X
		Sec. 8	All			X	X	X	X
		Sec. 12	Lots 2,4,5,6,7,8,9		X	X	X		X
		Sec. 16	SW¼NE¼, N½SW¼, W½SE¼		X	X	X	X	X
		Sec. 18	Lots 1,2,3,4, E½W½, E½			X	X	X	X
		Sec. 24	S½S½		X	X	X	X	X
T. 29S	R. 33E	Sec. 7	MS 765 & 766		X	X	X		X
		Sec. 8	Lots 1-12, SW¼			X		X	X
		Sec. 9	All			X		X	X
		Sec. 10	All			X		X	X
		Sec. 11	SW¼NE¼, SE¼NW¼, N½SW¼, SE¼SW¼			X		X	X
		Sec. 13	SE¼			X		X	X
		Sec. 16	SW¼			X		X	X

South Sierra Management Area

		Legal Description		Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 26	All					X	
		Sec. 28	All					X	
		Sec. 34	NE¼, N½NW¼			X		X	X
			SE¼SE¼		X	X		X	X
		Sec. 36	W½NW¼		X			X	
T. 29S.	R.33½E.	Sec. 13	Lots 1-4, E½E½			X	X	X	X
		Sec. 25	Lots 1,2 E½NE¼			X	X	X	X
T. 29S.	R. 34E.	Sec. 32	All				X	X	
T. 30S.	R. 31E.	Sec. 28	Lot 1			X	X	X	X
T. 30S.	R. 32E.	Sec. 12	SE¼		X		X	X	
		Sec. 14	N½NE¼		X		X	X	
T. 30S.	R. 33E	Sec. 2	Lots 1-4, N½N½, SE¼			X		X	X
		Sec. 5	S½S½SE¼		X	X	X	X	X
		Sec. 6	Lots 1-3, Lot 6, Lots 15, 16, S½NE¼		X		X	X	
		Sec. 10	NE¼NE¼		X		X	X	
		Sec. 14	NW¼NE¼, N½NW¼, excluding MS 5793		X	X	X	X	X
			SW¼NW¼ excluding MS 5793			X	X		X
		Sec. 15	SE¼SW¼			X	X	X	X
		Sec. 16	Denfer, Barbarossa, Chicago, San Francisco, Finley, Gasina, Finley #1, Finley #2 lodes and portions of Silver King, California and Chicago Annex lodes			X			X
		Sec. 19	SW¼SE¼, NE¼SE¼SE¼, S½SE¼SE¼			X	X	X	
		Sec. 21	Lot 15			X	X	X	X
		Sec. 22	SW¼NE¼NW¼NE¼			X	X	X	X
		Sec. 29	Lot 5, NW¼NW¼		X	X	X		X
		Sec. 30	Lots 9, 10		X	X	X		X

South Sierra Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 31	Lots 10, 11, 12 NE¼NE¼, SW¼NW¼NE¼, W½SW¼NE¼, SE¼SE¼NE¼, NE¼NE¼SW¼, NW¼NW¼SE¼, NE¼NE¼SE¼		X	X	X		X
T. 30S	R. 34E.	Sec. 2	Lots 5-16					X	
		Sec. 6	Lot 1		X	X	X	X	
		Sec. 12	All					X	
		Sec. 20	SE¼		X	X	X	X	X
		Sec. 24	N½NE¼NW¼		X	X	X	X	X
		Sec. 26	E½		X			X	
		Sec. 32	E½		X	X		X	X
		Sec. 34	All					X	
T. 31S.	R. 32E.	Sec. 6	Lots 1, 3, 4, S½NE¼, NE¼SW¼		X	X	X	X	X
		Sec. 32	E½NE¼, NE¼SE¼		X	X	X	X	X
T. 31S.	R. 33E.	Sec. 4	Lots 3,4 S½NW¼, SW¼		X	X	X	X	X
		Sec. 24	Lots 1-3, 5-12					X	
		Sec. 26	E½NE¼, NW¼NE¼, NE¼NW¼		X	X	X	X	X
T. 31S.	R. 34E.	Sec. 2	Lot 4					X	
		Sec. 3	Lots 1-4					X	
		Sec. 4	Lots 1, 2					X	
		Sec. 14	All					X	
		Sec. 18	E½E½					X	
		Sec. 20	Lots 1-4 S½N½, S½SW¼, SE¼					X	
		Sec. 24	Lots 7, 8					X	
T. 32S.	R. 30E.	Sec. 32	Lot 1		X	X	X	X	X
		Sec. 34	Lot 2		X	X	X	X	X
T. 32S.	R. 32E.	Sec. 22	E½NE¼, NW¼NE¼, NE¼NW¼, W½W½		X	X	X	X	X
T. 32S.	R. 33E.	Sec. 8	NE¼SE¼		X	X	X	X	X
T. 32S.	R. 34E.	Sec. 2	W½		X				
		Sec. 12	N½					X	

South Sierra Management Area

		Legal Description		Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
		Sec. 14	S½S½			X	X	X	X
		Sec. 22	E½E½, NE¼, N½NW¼, SW¼NW¼, NE¼SE¼					X	
		Sec. 24	NE¼, N½NW¼, SW¼NW¼, NE¼SE¼				X	X	
County: Tulare			Meridian: M.D.B.& M.						
T. 15S.	R. 25E.	Sec. 28	NE¼SE¼			X	X	X	X
T. 15S.	R. 26E.	Sec. 32	W½, SW¼SE¼				X	X	X
T. 16S.	R. 26E.	Sec. 8	NE¼NW¼			X	X	X	X
		Sec. 2	NW¼SW¼			X	X	X	X
T. 16S.	R. 27E.	Sec. 14	W½NW¼		X	X	X	X	X
		Sec. 26	NE¼SE¼, E½NE¼, NW¼NE¼		X	X	X	X	X
T. 16S.	R. 28E.	Sec. 4	SW¼		X		X	X	X
		Sec. 6	SE¼, SE¼NE¼		X		X	X	X
		Sec. 8	N½NE¼, NE¼NW¼		X		X	X	X
		Sec. 34	NE¼NE¼, W½NE¼, NW¼, W½SW¼		X				
T. 17S.	R. 27E.	Sec. 12	N½NW¼		X		X	X	X
		Sec. 34	NW¼NW¼			X	X	X	X
T. 17S.	R. 28E.	Sec. 4	Lots 3 & 4		X		X	X	
		Sec. 6	Lots 1, 5, 6, & 7, S½NE¼, SE¼NW¼, E½SW¼, SE¼				X	X	
		Sec. 12	NE¼SW¼		X		X	X	
		Sec. 24	NE¼NE¼				X	X	
T. 17S.	R. 29E.	Sec. 17	SW¼SW¼				X	X	
		Sec. 30	NE¼NE¼				X	X	
T. 18S.	R. 29E.	Sec. 10	E½SW¼, W½SE¼				X	X	
		Sec. 22	S½				X	X	
		Sec. 23	SW¼NE¼			X	X	X	X
		Sec. 23	SW¼SW¼				X	X	
		Sec. 25	All				X	X	
		Sec. 26	N½NW¼, W½NE¼, NW¼SE¼				X	X	
		Sec. 27	NE¼NE¼				X	X	
T. 19S.	R. 28E.	Sec. 14	SE¼NE¼,NE¼SE¼	C				X	

South Sierra Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
T. 19S.	R. 29E	Sec. 6	NE¼NE¼	C	X				
T. 19S.	R. 30E.	Sec. 30	SE¼NE¼, NE¼SE¼		X		X	X	X
T. 20S.	R. 30E.	Sec. 18	Lots 3 & 10, SE¼NE¼		X		X	X	X
		Sec. 19	Lots 1, 2, 7, & 8, S½NE¼, SE¼		X		X	X	X
T. 21S.	R. 30E.	Sec. 30	Portion of Florence G Lode	E	X		X	X	X
		Sec. 31	Portion of Florence G Lode	E	X		X	X	X
T. 22S.	R. 29E.	Sec. 14	Lots 1-4	E	X		X	X	X
		Sec. 30	SE¼NE¼	E	X		X	X	X
		Sec. 35	Lots 6, 7 & 9	E	X		X	X	X
T. 22S.	R. 30E.	Sec. 30	Lots 1, 6 & 7	E				X	X
		Sec. 34	Lots 2 & 3, NE¼SE¼, N½SW¼, SW¼SW¼	E	X		X	X	X
		Sec. 35	Lots 3, 4 & 6, SE¼SE¼, N½SE¼, S½NE¼	E	X		X	X	
T. 22S.	R. 36E.	Sec. 8	SE¼, N½SW¼, SE¼SW¼				X	X	
		Sec. 9	W½SW¼, SE¼SW¼				X	X	
		Sec. 17	E½NE¼, NW¼NE¼				X	X	
		Sec. 20	E½SE¼			X	X	X	X
		Sec. 21	S½SE¼			X	X	X	X
		Sec. 27	SE¼NW¼, NE¼SW¼, NW¼SE¼			X	X	X	X
		Sec. 28	NW¼NW¼			X	X	X	X
T. 23S.	R. 30E	Sec. 2	Lots 6, 7 & 9, S½NE¼, SW¼SW¼SW¼	E	X		X	X	X
		Sec. 3	E½E½SE¼	E	X		X	X	X
		Sec. 11	W½NW¼NW¼	E	X		X	X	X
		Sec. 12	W½, W½SE¼, NE¼	E			X	X	X
		Sec. 13	W½NW¼, NE¼NW¼	E			X	X	X
		Sec. 23	Lots 1, 4, 5 & 8	E	X		X	X	X
T. 24S.	R. 29E.	Sec. 29	Redfield Lode & Portion of Extension Lode	E	X		X	X	X
		Sec. 30	Portion of Extension Lode	E	X		X	X	X
T. 24S.	R. 30E.	Sec. 4	Lot 3	E	X		X	X	X
T. 24S.	R. 36E.	Sec. 27	NW¼SW¼		X				
		Sec. 28	SE¼NE¼, NE¼SE¼		X				

South Sierra Management Area

Legal Description				Condor[1]	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
T. 28S.	R. 31E.	Sec. 33	SE¼NE¼, SE¼			X	X	X	X
T. 28S.	R. 33E.	Sec. 17	NW¼NW¼			X	X	X	X
		Sec. 19	SE¼				X	X	X
		Sec. 20	All				X	X	X
		Sec. 32	All				X	X	X
T. 29S.	R. 30E.	Sec. 34	MS 5009		X	X	X	X	X
T. 29S.	R. 31E.	Sec. 2	Lots 1, 2, 3 & 4, S½N½NW¼SW¼, E½SE¼ and			X	X	X	X
			Rattlesnake Lode			X	X		X
		Sec. 6	SE¼NE¼, E½SE¼		X		X	X	X
		Sec. 34	N½NE¼		X		X	X	X

[1] The condor column identifies land that is available for disposal that lies within critical (C) or essential (E) condor habitat. Constraints on the disposal of these lands are described in Chapter 3.

[2] Not all lands available for disposal under the No Action Alternative (Alternative 1) are illustrated on this table. The No Action Alternative reflects the decisions contained in the South Sierra Management Framework Plan (MFP) and the Coast - Valley Resource Management Plan (RMP). Parcels identified as available for disposal in the South Sierra MFP, which generally fall into the South Sierra Management Area in this plan, are reflected above. The Coast - Valley RMP provided general direction for disposals, but did not specify the exact parcels that were available for disposal. Therefore there are no parcels from the Coast - Valley RMP identified under Alternative 1 on the above table. Parcels identified in the old land use plans that have already been disposed, or were considered for disposal but retained due to resource values, are also not reflected above. Estimates of the acreages presently available for disposal under each alternative may be found in Chapter 3.

National Cooperative Land and Wildlife Management Areas

National Cooperative Land and Wildlife Management Areas (NCLWMAs) are managed for the benefit of wildlife species and habitat requirements. It is generally against Bureau policy to dispose of lands within NCLWMAs. In the course of preparing this plan, several parcels within NCLWMAs were identified that were of marginal or little value. In some cases they have been heavily disturbed, while in others they are isolated pieces adjacent to developed areas. The lands within NCLWMAs that are listed below have been identified as being available for exchange for other lands within NCLWMAs. The intent is to dispose of lands of limited value, in exchange for lands with quality habitat.

PARCELS IDENTIFIED FOR POTENTIAL DISPOSAL WITHIN NCLWMA'S

SOUTH SIERRA Management Area	ALTERNATIVE
T. 22 S., R. 36 E., M.D.M., Sec. 28	IV
T. 26 S., R. 32 E., M.D.M., Sec. 13	III,IV
T. 27 S., R. 32 E., M.D.M., Sec. 12	I,III,IV
T. 27 S., R. 32 E., M.D.M., Sec. 27	I,III,IV
T. 28 S., R. 32 E., M.D.M., Sec. 12	I,III,IV
VALLEY Management Area	
T. 32 S., R. 23 E., M.D.M., Sec. 28	I,II,III,IV,V

Appendix C-5 Right-of-Way Avoidance/Exclusion Areas

RIGHT-OF-WAY AVOIDANCE (A) AND EXCLUSION (E) AREAS BY ALTERNATIVE

COAST MANAGEMENT AREA

	Resource Protection	Administrative Adjustment	Development	Preferred
	II	III	IV	V
ACEC'S				
Cypress Mountain	E	A		A
Calif. Rocks & Islands	← (CLOSED TO OPERATION OF THE LAND LAWS) →			
Frog Pond Mountain	E	A		A
Irish Hills	A	A		
Point Sal	← (CLOSED TO OPERATION OF THE LAND LAWS) →			
Rusty Peak	E			
Salinas River	E	A		A
Tierra Redonda	E	A		A
W&SR STUDY AREAS				
Salinas River	A	A	A	A
WILDERNESS & WSA'S				
Garcia Mountain	E	E	E	E
Machesna Mountain	E	E	E	E
Santa Lucia	E	E	E	E

***No Right-of-Way avoidance or exclusion areas have been identified for Alternative 1 (No Action).**

Appendix C-5 Right-of-Way Avoidance/Exclusion Areas (continued)

RIGHT-OF-WAY AVOIDANCE (A) AND EXCLUSION (E) AREAS BY ALTERNATIVE

VALLEY MANAGEMENT AREA

	Resource Protection	Administrative Adjustment	Development	Preferred
	II	III	IV	V
ACEC'S				
Alkali Sink	E	A		A
Bittercreek NWR	A			
Blue Stone Ridge	A			
Carrizo	A	A		A
Chico Martinez	A	A		A
Goose Lake	E	A		A
Kettleman Hills	A			
Lokern	A	A		A
W&SR STUDY AREAS				
Soda Lake	A	A	A	A
WSA'S				
Caliente Mountain	E	E	E	E

***No Right-of-Way avoidance or exclusion areas have been identified for Alternative 1 (No Action).**

Appendix C-5 Right-of-Way Avoidance/Exclusion Areas (continued)

RIGHT-OF-WAY AVOIDANCE (A) AND EXCLUSION (E) AREAS BY ALTERNATIVE

SOUTH SIERRA MANAGEMENT AREA

	Resource Protection	Administrative Adjustment	Development	Preferred
	II	III	IV	V
ACEC'S				
Blue Ridge	A	A		A
Case Mountain	A	A		A
Chimney Peak	A			
Deer Spring	E			
Erskine Creek/Limestone Caves	E			
Horse Canyon/Sand Canyon	A	A		A
Kernville Hot Springs	E			
Keyesville	A			A
North Fork Kaweah	A	A		A
Piute Cypress	E	A		A
Walker Pass	A	A		A
W&SR STUDY AREAS				
Canebrake Creek	A	A	A	A
Chimney Creek	A	A	A	A
Kaweah East Fork	A	A	A	A
Kaweah Middle Fork	A	A	A	A
Kaweah North Fork	A	A	A	A
Lower Kern River	A	A	A	A
South Fork Kern River	A	A	A	A
Spanish Needles Creek	A	A	A	A

***No Right-of-Way avoidance or exclusion areas have been identified for Alternative 1 (No Action).**

Appendix C-5 Right-of-Way Avoidance/Exclusion Areas (continued)

RIGHT-OF-WAY AVOIDANCE (A) AND EXCLUSION (E) AREAS BY ALTERNATIVE

SOUTH SIERRA MANAGEMENT AREA

	Resource Protection	Administrative Adjustment	Development	Preferred
	II	III	IV	V
WILDERNESS & WSA'S				
Domeland	E	E	E	E
Milk Ranch/Case Mountain	E	E	E	E
Owens Peak	E	E	E	E
Piute Cypress	E	E	E	E
Rockhouse	E	E	E	E
Sacatar Meadows	E	E	E	E
Sheep Ridge	E	E	E	E
OTHER				
Granite Cave Site	A	A	A	A
KER 311 Site	A	A	A	A
Walker Pass NHL	A	A	A	A

***No Right-of-Way avoidance or exclusion areas have been identified for Alternative 1 (No Action).**

Appendix C-6 Compensation Acquisitions

The following lands have been provided to the BLM as compensation for impacts to threatened or endangered species. This list is expected to grow under all alternatives. Modifications to this list that may result in significant impacts will first undergo NEPA analysis and public review. Special management constraints for these lands are identified in Chapter 3 in the Biological Resources section of each alternative.

1. CACA 27017 — 40 acres

   T. 31 S., R. 21 E., Sec 15, NW¼SE¼, MDB&M

2. CACA 26777 — 120 acres

   T. 32 S., R. 22 E., Secs 29,30, MDB&M
   T. 11 N., R. 26 W., Sec. 5 SBB&M

3. CACA 27016 — 60 acres

   T. 32 S., R. 22 E., Sec 29 SW¼NW¼ MDB&M
   Sec. 30 E½NE¼NE¼

4. CACA 27825 — 10 acres

   T. 11 N., R. 26 W., Sec 4 SW¼SW¼SW¼ SBB&M

5. CACA 28112 — 160 acres

   T. 11 N., R. 26 W., Sec. 10 NE¼ SBB&M

6. CACA 26783 — 161 acres

   T. 11 N., R. 25 W., Sec 7 SBB&M

Appendix C-7 Small Tract Patents

During the 1950s and 1960s about 3,000 acres of land in the Lake Isabella Area was patented for homesites under the authority of the Small Tract Act. Although the mineral estate is reserved to the United States, it is not available under the mining laws. The areas which were patented under this Act include lands in the following sections:

T. 25 S., R. 32 E. MDB&M
Sec. 12, 35

T. 26 S., R. 32 E. MDB&M
Sec. 12, 13, 15, 16

T. 25 S., R. 33 E. MDB&M
Secs. 15, 16, 21

T. 26 S., R. 33 E. MDB&M
Secs. 21, 29, 32

T. 30 S., R. 33 E. MDB&M
Sec. 15

T. 27 S., R. 33 E. MDB&M
Secs. 5, 6

T. 25 S., R. 34 E. MDB&M
Sec. 35

T. 26 S., R. 34 E. MDB&M
Sec. 1, 24

APPENDIX D - LIVESTOCK GRAZING

Appendix D-1 Grazing Levels

Appendix D-2 Guidelines to Grazing Management

Appendix D-3 Selective Management Categories for Grazing Allotments

Appendix D-4 Grazing Management For Mediterranean Annual Ranges

Appendix D-5 Guidelines for Temporary Modification of Grazing Levels

Appendix D-6 Guidelines for New Grazing Allotments

Appendix D-7 Strategy for Grazing Monitoring

Appendix D-1 Grazing Levels

GRAZING ALLOCATIONS UNDER ALTERNATIVE 1

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
COAST MANAGEMENT AREA									
I	RED HILL	00035	160	3	C	AFA	100	A	500
I	CHIMNEY ROCK	00042	800	24	C	AFA	100	A	500
I	LAS TABLAS	00058	1000	22	C	AFA	100	A	500
I	SANTA TERESA	00060	1627	400	C	AFA	100	A	500
I	PASO ROBLES	00108	20	3	H	1/1-3/31	100	A	500
C	SANTA RITA	00010	160	16	C	3/1-9/15	100	A	500
C	SOUTH MOUNTAIN	00055	186	23	C	AFA	100	A	500
	7 allotments		3,953	491					
SOUTH SIERRA MANAGEMENT AREA									
I	BADGER CREEK**	00009	160	37	C	4/1-10/1	100	A	500
I	NORTH FORK RIV	00017	5653	448	C	AFA	100	A	600
I	HORN MOUNTAIN	00036	1483	99	C	AFA	100	A	500
I	GOLDPAN CAN.	00045	470	74	C	AFA	100	A	500
I	RANKIN RANCH	00047	2650	442	C	AFA	100	A	500
I	MOUNTAIN CREEK**	00048	264	88	C	AFA	100	A	500
I	LORAINE	00049	678	113	C	AFA	100	A	500
I	STUDHORSE CAN.	00051	1180	197	C	3/1-5/31	100	A	500
I	CURTIS MOUNTAIN	00062	40	13	C	AFA	100	A	500
I	LIVEOAK CANYON	00066	80	13	C	AFA	100	A	500
I	FREEDOM HILL	00074	2278	539	C	3/1-5/15	85	A	300
I crmp	WALKER PASS W.	00077	14566	781	C	1/1-6/30	92	P	-
I	SHORT CANYON	00082	3260	150	C	2/1-4/30	100	P/A	300
I	CHOLLA CANYON	00086	4572	1825	C	10/15-6/30	100	P/A	300
I	WAGY FLAT	00090	10746	1247	C	3/1-8/31	100	P/A	400
I	DRY CREEK	00100	160	20	C	AFA	100	A	500
I	SAND CANYON	00111	2501	365	C	AFA	100	A	350/500
I	JOHNS PEAK	00113	960	160	C	AFA	100	A	350/500
I	RED MOUNTAIN	00117	7400	309	C	3/1-10/31	84	A	350
I crmp	SCOBIE MEADOW	00118	6890	182	C	6/1-11/1	100	P	-
I crmp	CANEBRAKE	00123	9837	952	C	1/1-6/30	82	A	300
I crmp	LONG VALLEY	00124	22207	226	C	10/1-11/30	100	P	-
I crmp	KENNEDY LAMONT	00125	44296	794	C	7/1-9/30	100	P	-
M	CASE MOUNTAIN	00014	2031	170	C	AFA	100	P/A	500
M	MANKINS CREEK	00033	476	80				A	500
M	KELSO PEAK	00075	2630	488	C	2/1-5/15	100	P	-
M	SMITH CANYON	00080	3560	80	C	3/1-6/30	100	P/A	300
M	LYNCH CANYON	00083	510	64	C	3/1-4/30	87	A	300
M	CYRUS CANYON	00084	2110	230	C	10/1-5/15	17	A	300
M	COOKS PEAK	00085	2097	225	C	3/1-5/15	64	A	300
M	HAVILAH BASIN	00087	4180	356	C	AFA	70	A	500
	"	"	120	24	C	3/1-10/31	100	A	500
M	S. COMB ROCKS	00094	399	100	H	10/1-6/30	100	A	500
M	BURNT POINT	00102	1184	79	C	AFA	100	A	500

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
M	WASHBURN COVE	00104	710	118	C	10/1-4/14	100	A	500
C	BLOSSOM PEAK	00005	80	7	C	3/1-6/1	100	A	500
C	LIVE OAK PASS	00012	280	70	C	6/1-9/30	100	A	500
C	RANCHERIA CRK.	00023	545	115	C	4/1-10/1	100	A	350
C	BEAR CREEK	00024	452	10	C	AFA	100	A	500
C	N. COMB ROCKS	00034	230	39	C	AFA	100	A	500
C	THOMPSON RIDGE	00052	1250	63	C	5/1-7/31	100	A	500
C	LOCO BILL CAN.	00059	640	82	C	4/1-10/1	100	A	350
C	OAK GROVE	00061	2841	237	C	4/1-9/30	100	A	500
C crmp	SACATAR MEAD.	00076	6320	98	C	10/1-10/31	100	P	-
C	AIRPORT	00078	2565	411	C	3/1-5/15	86	A	300
	"	"	-	150	C	3/1-5/15	100	A	300
C	FAY CANYON	00079	361	64	C	3/1-4/30	100	P/A	300
C	NELLIE'S NIPPLE	00081	3000	810	C	3/15-10/14	100	A	300
C	BODFISH	00089	114	14	C/H	3/1-9/30	100	A	300
C	PROGRESS GULCH	00095	480	80	C	3/1-6/30	100	A	500
C	MILK RANCH PEAK	00103	1980	132	C	4/15-9/30	100	A	500
C	BALD EAGLE PEAK	00119	1960	168	C	7/1-2/28	100	A	500
C crmp	SPANISH NEEDLE	00120	3160	40	C	3/15-6/30	80	P	-
	51 allotments		188,596	13,676					
VALLEY MANAGEMENT AREA									
I	OILFIELD ROAD	00002	440	73	S	12/1-5/31	100	P/A	500
I*	NAVAL PET. RES. I	00003	1038	172	S	12/1-2/14	100	P/A	500
I	CATSKIN	00004	880	220	C	AFA	100	A	500
I	CUYAMA 2	00006	480	80	C	12/1-2/14	100	P/A	500
	"	"	-	-	C	5/1-5/31	100	P/A	500
I	FREEBORN MT.	00007	2400	344	C	AFA	100	A	500
I	PLEITO	00008	4154	1309	C	AFA	100	A	500
	"	"	160	53	C	12/1-5/31	100	P/A	500
I	COTTONWOOD DR	00011	320	80	C	AFA	100	A	500
I	TEMBLOR CREEK	00013	164	41	C	AFA	100	A	500
	"	"	164	41	C	12/1-5/31	100	P/A	500
I	NORTH TEMBLOR	00015	10900	1220	C	12/1-5/31	100	P/A	500
	"	"	-	1220	S	12/1-5/31	100	P/A	500
cpna	"	"	7090	794	C	12/1-3/31	100	P/A	500
cpna	"	"	-	795	S	12/1-3/31	100	P/A	500
	"	"	13059	1464	C	AFA	100	A	500
	"	"	-	1464	S	AFA	100	A	500
I	OIL FIELD	00016	6752	500	S	12/1-2/14	100	P/A	500
I cpna	WASHBURN RNCH	00018	8400	643	C	12/1-4/1	100	P/A	500
I	BUENA VISTA CRK.	00019	640	107	S	12/1-3/31	100	P/A	500
I	ELEPHANT BACK	00020	80	16	C	AFA	100	A	500
I	FRAZER VALLEY	00021	1088	109	S	12/1-3/31	100	P/A	500
cpna	"	"	311	31	S	12/1-3/31	100	P/A	500
	"	"	633	63	S	12/1-5/31	100	P/A	500
	"	"	27	3	S	AFA	100	A	500
I cpna	MC KITTRICK SMT	00022	160	40	C	12/1-3/31	100	A	500
I cpna	PAINTED ROCK	00026	15186	900	C	12/1-4/1	100	P/A	500
I	BITTERWATER VAL	00027	80	12	S	9/1-5/31	100	A	500

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
I*	KETTLEMAN HILLS	00028	4153	781	C	12/1-2/14	100	P/A	500
	"	"	-	-	C	5/1-5/31	100	P/A	500
	"	"	-	195	S	12/1-2/14	100	P/A	500
	"	"	-	-	S	5/1-5/31	100	P/A	500
I cpna	KCL	00029	29385	3387	C	12/1-4/1	100	P/A	500
I	WEST KLIPSTEIN	00030	480	98	S	AFA	100	A	500
I	SULPHUR CANYON	00031	3300	471	C	12/1-5/31	100	P/A	500
	"	"	12765	1824	C	1/1-6/30	100	A	500
I	HUBBARD HILL	00032	4400	628	C	12/1-5/31	100	A	500
I	RAVEN PASS	00037	40	12	C	9/1-5/31	100	A	500
I*	OLD ARROYO	00039	440	147	C	12/1-2/14	100	P/A	500
	"	"	-	-	C	5/1-5/31	100	P/A	500
I	RIO BRAVO	00040	401	100	C	AFA	100	A	500
I	DERBY ACRES	00041	320	92	C	12/1-3/31	100	P/A	500
I cpna	GOODWIN RANCH	00043	2660	443	C	12/1-4/1	100	P/A	500
I	SELBY RANCH	00044	4960	627	C	12/1-5/31	100	P/A	500
cpna	"	"	4807	607	C	12/1-3/31	100	P/A	500
	"	"	15421	1948	C	7/1-12/31	100	A	500
I cpna	SAUCITO RANCH	00046	3800	558	C	12/1-4/1	100	P/A	500
I*	SANTA BARB.CAN	00050	1704	113	C	12/1-2/14	100	P/A	500
	"	"	-	-	C	5/1-5/31	100	P/A	500
I cpna	TEMBLOR-CALIENT	00053	53300	4694	C	12/1-4/1	100	P/A	500
I	WILLOW SPRG CN	00054	160	32	C	AFA	100	A	500
I	ROUND MTN ROAD	00056	480	80	C	12/1-5/31	100	P/A	500
I	SANTIAGO CREEK	00057	1974	363	C	AFA	100	A	500
	"	"	840	154	C	12/1-5/31	100	P/A	500
I	CHICO MARTINEZ	00063	2456	491	C	12/1-3/31	100	P/A	500
cpna	"	"	80	16	C	12/1-3/31	100	P/A	500
	"	"	1864	373	C	12/1-5/31	100	P/A	500
	"	"	3953	791	C	AFA	100	A	500
I	CEDAR CANYON	00064	562	125	C	3/1-6/30	100	A	500
	"	"	62	14	C	12/1-5/31	100	P/A	500
I	PACKWOOD-FRAN.	00065	1515	432	C	AFA	100	A	500
I*	ARROYO HONDO	00069	560	93	S	12/1-2/14	100	P/A	500
	"	"	-	-	S	5/1-5/31	100	P/A	500
I cpna	CARRIZO RANCH	00070	4240	227	C	12/1-4/1	100	P/A	500
I	RANCHERIA	00071	194	49	C	12/1-5/31	100	A	500
I	BLUESTONE RDGE	00072	2986	747	C	12/21-6/30	100	A	500
I	CHIMINEAS RANCH	00073	8145	2715	C	12/1-5/31	100	P/A	500
I	MARICOPA RANGE	00096	800	160	C	10/15-5/15	100	A	500
	"	"	4564	913	C	12/1-5/31	100	P/A	500
I	MC VAN OIL FIELD	00097	200	34	C	AFA	100	A	500
I	BITTERCREEK DRG	00099	240	60	C	AFA	100	A	500
I	WESTERN MIN. RD.	00106	1479	146	C	12/1-5/31	100	P/A	500
I	CIENAGA CANYON	00107	1984	399	C	12/1-5/31	100	P/A	500
I*	SURP. ARROYO	00110	2974	992	S	12/1-2/14	100	P/A	500
	"	"	-	-	S	5/1-5/31	100	P/A	500
I	EAST KLIPSTEIN	00114	120	24	C	3/1-9/30	100	A	500
I	POWER LINE RD	00115	215	36	S	12/1-5/31	100	P/A	500
I	DEVILS GULCH	00116	632	127	C	12/1-5/31	100	P/A	500
	51 allotments		260,231	38,110					

NO GRAZING WILL BE AUTHORIZED ON THE FOLLOWING ALLOTMENTS UNDER ALTERNATIVE 1:
(ACRES AND AUMS SHOWN WILL BE SUSPENDED INDEFINITELY)

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
VALLEY MANAGEMENT AREA									
I*	NAVAL PET. RES. I	00003	480	81	S	NG	100	P/A	
I*	KETTLEMAN HILLS *	00028	40	5	S	NG	100	P/A	
			-	5	C	NG	100	P/A	
I	N. NAVAL PET.RES.	00038	2278	380	S	NG	100	P/A	
I*	OLD ARROYO	00039	40	13	C	NG	100	P/A	
I*	SANTA BARB.CAN	00050	74	5	C	NG	100	P/A	
I*	ARROYO HONDO	00069	40	7	S	NG	100	P/A	
I*	SURP. ARROYO	00110	480	160	S	NG	100	P/A	
	7 allotments		3,432	656					

DESCRIPTION OF ABBREVIATIONS OR NOTATIONS IN GRAZING TABLES:

MGMT. STAT = SELECTIVE MANAGEMENT CATEGORY: I=IMPROVE, M=MAINTAIN, C=CUSTODIAL.
KIND = KIND OF LIVESTOCK: C=CATTLE, S=SHEEP, H=HORSES.
%FED. = PERCENT FEDERAL. RATE AT WHICH PUBLIC LAND FORAGE IS CHARGED TO RANCHER IN RELATION TO FORAGE PRODUCED ON RANCHER CONTROLLED PRIVATE LANDS.
RANGE TYPE = PREDOMINANT FORAGE TYPE: A=ANNUAL GRASSES, P=PERENNIAL SHRUBS OR GRASSES.
MIN. MULCH = MINIMUM RESIDUAL DRY MATTER (MULCH) REQUIRED (IN LBS./ACRE).
AFA = GRAZING ALLOWED AS FORAGE IS AVAILABLE; SEASON NOT SPECIFIED.
NG = NO GRAZING AUTHORIZED.
* = A PORTION OF THIS ALLOTMENT WILL NOT HAVE GRAZING AUTHORIZED.
** = THE MAJORITY OF THIS ALLOTMENT FALLS IN THIS MANAGEMENT AREA. IT WILL ONLY BE ANALYZED IN THIS MANAGEMENT AREA TO AVOID DUPLICATION.
cpna = CARRIZO PLAIN NATURAL AREA.
crmp = WALKER PASS COORDINATED RESOURCE MANAGEMENT PLAN.

GRAZING ALLOCATIONS UNDER ALTERNATIVE 2

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
COAST MANAGEMENT AREA									
I	RED HILL	00035	160	3	C	12/1-2/14	100	A	500
I	CHIMNEY ROCK	00042	800	24	C	12/1-2/14	100	A	500
I	LAS TABLAS	00058	1000	22	C	12/1-2/14	100	A	500
I	SANTA TERESA	00060	1627	400	C	12/1-5/31	100	A	500
I	PASO ROBLES	00108	20	3	H	1/1-3/31	100	A	500
C	SANTA RITA	00010	160	16	C	12/1-5/31	100	A	500
C	SOUTH MOUNTAIN	00055	186	23	C	12/1-5/31	100	A	500
	7 allotments		3,953	491					
SOUTH SIERRA MANAGEMENT AREA									
I*	BADGER CREEK**	00009	120	28	C	12/1-5/31	100	A	500
I	NORTH FORK RIV	00017	5653	448	C	12/1-5/31	100	A	500
I	HORN MOUNTAIN	00036	1483	99	C	12/1-5/31	100	A	500
I*	GOLDPAN CAN.	00045	160	25	C	11/1-5/31	100	A	700
I	RANKIN RANCH	00047	2650	442	C	12/1-5/31	100	A	700
I	MOUNTAIN CREEK**	00048	164	55	C	12/1-5/31	100	A	500
	"	"	100	33	C	12/1-2/14	100	A	700
I	LORAINE	00049	678	113	C	12/1-5/31	100	A	700
I	STUDHORSE CAN.	00051	1180	197	C	3/1-5/31	100	A	700
I	CURTIS MOUNTAIN	00062	40	13	C	12/1-5/31	100	A	500
I	LIVEOAK CANYON	00066	80	13	C	12/1-2/14	100	A	700
I	FREEDOM HILL	00074	2278	539	C	3/1-5/15	85	A	500
I crmp	WALKER PASS W.	00077	14566	781	C	1/1-6/30	92	P	-
I	SHORT CANYON	00082	3260	150	C	2/1-4/30	100	P/A	500
I	CHOLLA CANYON	00086	4572	1825	C	12/1-5/31	100	P/A	500
I	WAGY FLAT	00090	10746	1247	C	11/1-5/31	100	P/A	500
I	DRY CREEK	00100	160	20	C	12/1-2/14	100	A	700
I	SAND CANYON	00111	2501	365	C	12/1-5/31	100	A	500/700
I	JOHNS PEAK	00113	960	160	C	12/1-5/31	100	A	500/700
I	RED MOUNTAIN	00117	7400	309	C	12/1-5/31	84	A	500
I crmp	SCOBIE MEADOW	00118	6890	182	C	6/1-11/1	100	P	-
I crmp	CANEBRAKE	00123	9837	952	C	1/1-6/30	82	A	300
I crmp	LONG VALLEY	00124	22207	226	C	10/1-11/30	100	P	-
I crmp	KENNEDY LAMONT	00125	44296	794	C	7/1-9/30	100	P	-
M	CASE MOUNTAIN	00014	2031	170	C	12/1-5/31	100	P/A	500
M	MANKINS CREEK	00033	476	80	.	12/1-5/31	.	A	500
M	KELSO PEAK	00075	2630	488	C	2/1-5/15	100	P	-
M	SMITH CANYON	00080	3560	80	C	2/1-5/31	100	P/A	500
M	LYNCH CANYON	00083	510	64	C	3/1-4/30	87	A	500
M	CYRUS CANYON	00084	2110	230	C	12/1-3/31	17	A	500
M	COOKS PEAK	00085	2097	225	C	12/1-5/31	64	A	500
M	HAVILAH BASIN	00087	4180	356	C	12/1-5/31	70	A	500
	"	"	120	24	C	12/1-5/31	100	A	500
M	S. COMB ROCKS	00094	399	100	H	12/1-5/31	100	A	500
M	BURNT POINT	00102	1184	79	C	12/1-5/31	100	A	500
M	WASHBURN COVE	00104	710	118	C	12/1-5/31	100	A	500
C	BLOSSOM PEAK	00005	80	7	C	2/1-5/31	100	A	500

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
C	LIVE OAK PASS	00012	280	70	C	12/1-5/31	100	A	500
C	RANCHERIA CRK.	00023	545	115	C	12/1-5/31	100	A	500
C	BEAR CREEK	00024	452	10	C	12/1-5/31	100	A	500
C	N. COMB ROCKS	00034	230	39	C	12/1-5/31	100	A	500
C	THOMPSON RIDGE	00052	1250	63	C	12/1-5/31	100	A	500
C	LOCO BILL CAN.	00059	640	82	C	12/1-5/31	100	A	500
C	OAK GROVE	00061	2841	237	C	12/1-5/31	100	A	500
C crmp	SACATAR MEAD.	00076	6320	96	C	10/1-10/31	100	P	-
C	AIRPORT	00078	2565	411	C	3/1-5/15	86	A	500
	"	"	-	150	C	3/1-5/15	100	A	500
C	FAY CANYON	00079	361	64	C	3/1-4/30	100	P/A	500
C	NELLIE'S NIPPLE	00081	3000	810	C	12/1-5/31	100	A	500
C	BODFISH	00089	114	14	C/H	12/1-5/31	100	A	500
C	PROGRESS GULCH	00095	480	80	C	2/1-5/31	100	A	500
C	MILK RANCH PEAK	00103	1980	132	C	12/1-5/31	100	A	500
C	BALD EAGLE PEAK	00119	1960	168	C	12/1-3/31	100	A	500
C crmp	SPANISH NEEDLE	00120	3160	40	C	3/15-6/30	80	P	-
	51 allotments		188,246	13,618					
VALLEY MANAGEMENT AREA									
I	CATSKIN	00004	880	220	C	12/1-2/14	100	A	700
I	FREEBORN MT.	00007	2400	344	C	12/1-2/14	100	A	700
I*	PLEITO	00008	4154	1309	C	12/1-3/31	100	A	700
I	COTTONWOOD DR	00011	320	80	C	12/1-2/14	100	A	700
	TEMBLOR CREEK	00013	328	82	C	12/1-2/14	100	A	700
I*	NORTH TEMBLOR	00015	23959	2684	C	12/1-2/14	100	P/A	700
	"	"	-	2684	S	12/1-2/14	100	P/A	700
cpna	"	"	7090	794	C	12/1-3/31	100	P/A	500
cpna	"	"	-	795	S	12/1-3/31	100	P/A	500
I cpna	WASHBURN RNCH	00018	8400	643	C	12/1-4/1	100	P/A	500
I	ELEPHANT BACK	00020	80	16	C	12/1-2/14	100	A	700
I*	FRAZER VALLEY	00021	1748	175	S	12/1-2/14	100	P/A	700
cpna	*	*	311	31	S	12/1-3/31	100	P/A	500
I cpna	MC KITTRICK SMT	00022	160	40	C	12/1-3/31	100	A	500
I cpna	PAINTED ROCK	00026	15186	900	C	12/1-4/1	100	P/A	500
I	BITTERWATER VAL	00027	80	12	S	12/1-2/14	100	A	700
I cpna	KCL	00029	29385	3387	C	12/1-4/1	100	P/A	500
I	WEST KLIPSTEIN	00030	480	96	S	12/1-2/14	100	A	700
I	SULPHUR CANYON	00031	12765	1824	C	12/1-3/31	100	A	700
	"	"	3300	471	C	12/1-2/14	100	P/A	700
I	HUBBARD HILL	00032	4400	628	C	12/1-2/14	100	A	700
I	RAVEN PASS	00037	40	12	C	12/1-2/14	100	A	700
I	DERBY ACRES	00041	320	92	C	12/1-2/14	100	P/A	700
I cpna	GOODWIN RANCH	00043	2660	443	C	12/1-4/1	100	P/A	500
I cpna	SELBY RANCH	00044	4807	607	C	12/1-4/1	100	P/A	500
	"	"	4960	627	C	12/1-2/14	100	P/A	700
	"	"	15421	1948	C	12/1-3/31	100	A	700
I cpna	SAUCITO RANCH	00046	3800	558	C	12/1-4/1	100	P/A	500
I cpna	TEMBLOR-CALIENT	00053	53300	4694	C	12/1-4/1	100	P/A	500
I	WILLOW SPRG CN	00054	160	32	C	12/1-2/14	100	A	700
I	SANTIAGO CREEK	00057	1407	259	C	12/1-2/14	100	A	700
	*	*	1407	258	C	12/1-2/14	100	P/A	700
I	CHICO MARTINEZ	00063	8353	1671	C	12/1-2/14	100	P/A	700

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
I	CEDAR CANYON	00064	562	125	C	12/1-2/14	100	A	700
	"	"	62	14	C	12/1-2/14	100	P/A	700
I	PACKWOOD-FRAN.	00065	1515	432	C	12/1-2/14	100	A	700
I cpna	CARRIZO RANCH	00070	4240	227	C	12/1-4/1	100	P/A	500
I	RANCHERIA	00071	194	49	C	12/1-2/14	100	A	700
I	BLUESTONE RDGE	00072	2986	747	C	12/1-2/14	100	A	700
I	CHIMINEAS RANCH	00073	1580	524	C	12/1-2/14	100	P/A	700
	"	"	6565	2191	C	12/1-3/31	100	P/A	700
I	MARICOPA RANGE	00096	5364	1073	C	12/1-2/14	100	P/A	700
I	MC VAN OIL FIELD	00097	200	34	C	12/1-2/14	100	A	700
I	BITTERCREEK DRG	00099	240	60	C	12/1-3/31	100	A	700
I	WESTERN MIN. RD.	00106	1479	146	C	12/1-2/14	100	P/A	700
I	CIENAGA CANYON	00107	1994	399	C	12/1-2/14	100	P/A	700
I	EAST KLIPSTEIN	00114	120	24	C	12/1-2/14	100	A	700
I	DEVILS GULCH	00116	632	127	C	12/1-2/14	100	P/A	700
	38 allotments		239,794	34,588					

NO GRAZING AUTHORIZED ON THE FOLLOWING ALLOTMENTS UNDER ALTERNATIVE 2:
(ACRES AND AUMS SHOWN WILL BE SUSPENDED INDEFINITELY)

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
SOUTH SIERRA MANAGEMENT AREA									
I*	BADGER CREEK**	00009	40	9	C	NG	100	A	
I*	GOLDPAN CAN.	00045	310	49	-	NG	-	A	
	2 allotments		350	58					
VALLEY MANAGEMENT AREA									
I	OILFIELD ROAD	00002	440	73	S	NG	100	P/A	
I	NAVAL PET. RES. I	00003	1518	253	S	NG	100	P/A	
I	CUYAMA 2	00006	480	80	C	NG	100	P/A	
I*	PLEITO	00008	160	53	C	NG	100	P/A	
I	OIL FIELD	00016	6752	500	S	NG	100	P/A	
I	BUENA VISTA CRK.	00019	640	107	S	NG	100	P/A	
I	KETTLEMAN HILLS	00028	4193	786	C	NG	100	P/A	
	"	"	-	200	S	NG	100	P/A	
I	N. NAVAL PET.RES.	00038	2278	380	S	NG	100	P/A	
I	OLD ARROYO	00039	480	160	C	NG	100	P/A	
I	RIO BRAVO	00040	401	100	C	NG	100	A	
I	SANTA BARB.CAN	00050	1778	118	C	NG	100	P/A	
I	ROUND MTN ROAD	00056	480	80	C	NG	100	P/A	
I	ARROYO HONDO	00069	600	100	S	NG	100	P/A	
I	SURP. ARROYO	00110	3454	1152	S	NG	100	P/A	
I	POWER LINE RD	00115	215	36	S	NG	100	P/A	
	15 allotments		23,869	4,178					

DESCRIPTION OF ABBREVIATIONS OR NOTATIONS IN GRAZING TABLES:

MGMT. STAT = SELECTIVE MANAGEMENT CATEGORY: I=IMPROVE, M=MAINTAIN, C=CUSTODIAL.
KIND = KIND OF LIVESTOCK: C=CATTLE, S=SHEEP, H=HORSES.
%FED. = PERCENT FEDERAL RATE AT WHICH PUBLIC LAND FORAGE IS CHARGED TO RANCHER IN RELATION TO FORAGE PRODUCED ON RANCHER CONTROLLED PRIVATE LANDS.
RANGE TYPE = PREDOMINANT FORAGE TYPE: A=ANNUAL GRASSES, P=PERENNIAL SHRUBS OR GRASSES.
MIN. MULCH = MINIMUM RESIDUAL DRY MATTER (MULCH) REQUIRED (IN LBS./ACRE).
AFA = GRAZING ALLOWED AS FORAGE IS AVAILABLE; SEASON NOT SPECIFIED.
NG = NO GRAZING AUTHORIZED.
* = A PORTION OF THIS ALLOTMENT WILL NOT HAVE GRAZING AUTHORIZED.
** = THE MAJORITY OF THIS ALLOTMENT FALLS IN THIS MANAGEMENT AREA. IT WILL ONLY BE ANALYZED IN THIS MANAGEMENT AREA TO AVOID DUPLICATION.
cpna = CARRIZO PLAIN NATURAL AREA.
crmp = WALKER PASS COORDINATED RESOURCE MANAGEMENT PLAN.

GRAZING ALLOCATIONS UNDER ALTERNATIVE 3

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
COAST MANAGEMENT AREA									
I	RED HILL	00035	160	3	C	AFA	100	A	500
I	CHIMNEY ROCK	00042	800	24	C	AFA	100	A	500
I	LAS TABLAS	00056	1000	22	C	AFA	100	A	500
I	SANTA TERESA	00060	1627	400	C	AFA	100	A	500
I	PASO ROBLES	00108	20	3	H	1/1-3/31	100	A	500
C	SANTA RITA	00010	160	16	C	3/1-9/15	100	A	500
C	SOUTH MOUNTAIN	00055	186	23	C	AFA	100	A	500
	7 allotments		3,953	491					
SOUTH SIERRA MANAGEMENT AREA									
I	BADGER CREEK**	00009	160	37	C	4/1-10/1	100	A	500
I	NORTH FORK RIV	00017	5653	448	C	AFA	100	A	600
I	HORN MOUNTAIN	00036	1483	99	C	AFA	100	A	500
I	GOLDPAN CAN.	00045	470	74	C	11/1-5/31	100	A	500
I	RANKIN RANCH	00047	2650	442	C	AFA	100	A	500
I	MOUNTAIN CREEK**	00048	264	88	C	AFA	100	A	500
I	LORAINE	00049	678	113	C	AFA	100	A	500
I	STUDHORSE CAN.	00051	1180	197	C	3/1-5/30	100	A	500
I	CURTIS MOUNTAIN	00062	40	13	C	AFA	100	A	500
I	LIVEOAK CANYON	00066	80	13	C	AFA	100	A	500
I	FREEDOM HILL	00074	2278	539	C	3/1-5/15	85	A	300
I crmp	WALKER PASS W.	00077	14566	781	C	1/1-6/30	92	P	-
I	SHORT CANYON	00082	3260	150	C	2/1-4/30	100	P/A	300
I	CHOLLA CANYON	00086	4572	1825	C	10/15-6/30	100	P/A	300
I	WAGY FLAT	00090	10746	1247	C	11/1-5/31	100	P/A	400
I	DRY CREEK	00100	160	20	C	AFA	100	A	500
I	SAND CANYON	00111	2501	365	C	AFA	100	A	350/500
I	JOHNS PEAK	00113	960	160	C	AFA	100	A	350/500
I	RED MOUNTAIN	00117	7400	309	C	3/1-10/30	84	A	500
I crmp	SCOBIE MEADOW	00118	6890	182	C	6/1-11/1	100	P	-
I crmp	CANEBRAKE	00123	9837	952	C	1/1-6/30	82	A	300
I crmp	LONG VALLEY	00124	22207	226	C	10/1-11/30	100	P	-
I crmp	KENNEDY LAMONT	00125	44298	794	C	7/1-9/30	100	P	-
M	CASE MOUNTAIN	00014	2031	170	C	AFA	100	P/A	500
M	MANKINS CREEK	00033	476	80				A	500
M	KELSO PEAK	00075	2630	488	C	2/1-5/15	100	P	-
M	SMITH CANYON	00080	3560	80	C	3/1-6/30	100	P/A	300
M	LYNCH CANYON	00083	510	64	C	3/1-4/30	87	A	300
M	CYRUS CANYON	00084	2110	230	C	10/1-5/15	17	A	300
M	COOKS PEAK	00085	2097	225	C	3/1-5/15	64	A	300
M	HAVILAH BASIN	00087	4180	356	C	AFA	70	A	500
	"	"	120	24	C	3/1-10/31	100	A	500
M	S. COMB ROCKS	00094	399	100	H	10/1-6/30	100	A	500
M	BURNT POINT	00102	1184	79	C	AFA	100	A	500
M	WASHBURN COVE	00104	710	118	C	10/1-4/15	100	A	500
C	BLOSSOM PEAK	00005	80	7	C	3/1-6/1	100	A	500
C	LIVE OAK PASS	00012	280	70	C	6/1-9/30	100	A	500

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
C	RANCHERIA CRK.	00023	545	115	C	4/1-10/1	100	A	300
C	BEAR CREEK	00024	452	10	C	AFA	100	A	500
C	N. COMB ROCKS	00034	230	39	C	AFA	100	A	500
C	THOMPSON RIDGE	00052	1250	63	C	5/1-7/31	100	A	500
C	LOCO BILL CAN.	00059	640	82	C	4/1-10/1	100	A	300
C	OAK GROVE	00061	2841	237	C	4/1-9/30	100	A	500
C crmp	SACATAR MEAD.	00076	6320	96	C	10/1-10/31	100	P	-
C	AIRPORT	00078	2565	411	C	3/1-5/15	86	A	300
C	AIRPORT	00078	-	150	C	3/1-5/15	100	A	300
C	FAY CANYON	00079	361	64	C	3/1-4/30	100	P/A	300
C	NELLIE'S NIPPLE	00081	3000	810	C	3/15-10/14	100	A	300
C	BODFISH	00089	114	14	C/H	3/1-9/30	100	A	300
C	PROGRESS GULCH	00095	480	80	C	3/1-6/30	100	A	500
C	MILK RANCH PEAK	00103	1980	132	C	4/15-9/30	100	A	500
C	BALD EAGLE PEAK	00119	1960	168	C	7/1-2/28	100	A	500
C crmp	SPANISH NEEDLE	00120	3160	40	C	3/15-6/30	80	P	-
	51 allotments		188,596	13,676					
VALLEY MANAGEMENT AREA									
I	OILFIELD ROAD	00002	440	73	S	12/1-5/31	100	P/A	500
I*	NAVAL PET. RES. I	00003	1038	172	S	12/1-2/14	100	P/A	500
I	CATSKIN	00004	880	220	C	AFA	100	A	500
I	CUYAMA 2	00006	480	80	C	12/1-2/14	100	P/A	500
I	FREEBORN MT.	00007	2400	344	C	AFA	100	A	500
I	PLEITO	00008	4154	1309	C	AFA	100	A	500
	"	"	160	53	C	12/1-5/31	100	P/A	500
I	COTTONWOOD DR	00011	320	80	C	AFA	100	A	500
I	TEMBLOR CREEK	00013	164	41	C	AFA	100	A	500
	"	"	164	41	C	12/1-5/31	100	P/A	500
I	NORTH TEMBLOR	00015	10900	1220	C	12/1-5/31	100	P/A	500
	"	"	-	1220	S	12/1-5/31	100	P/A	500
cpna	"	"	7090	794	C	12/1-3/31	100	P/A	500
cpna	"	"	-	795	S	12/1-3/31	100	P/A	500
	"	"	13059	1464	C	AFA	100	A	500
	"	"	-	1464	S	AFA	100	A	500
I	OIL FIELD	00016	6752	500	S	12/1-2/14	100	P/A	500
I cpna	WASHBURN RNCH	00018	8400	643	C	12/1-4/1	100	P/A	500
I	BUENA VISTA CRK.	00019	640	107	S	12/1-2/14	100	P/A	500
I	ELEPHANT BACK	00020	80	16	C	AFA	100	A	500
I	FRAZER VALLEY	00021	1088	109	S	12/1-3/31	100	P/A	500
cpna	"	"	311	31	S	12/1-3/31	100	P/A	500
	"	"	633	63	S	12/1-5/31	100	P/A	500
	"	"	27	3	S	AFA	100	A	500
I cpna	MC KITTRICK SMT	00022	160	40	C	12/1-3/31	100	A	500
I cpna	PAINTED ROCK	00026	15186	900	C	12/1-4/1	100	P/A	500
I	BITTERWATER VAL	00027	80	12	S	9/1-5/31	100	A	500
I*	KETTLEMAN HILLS	00028	4153	781	C	12/1-2/14	100	P/A	500
	"	"	-	195	S	12/1-2/14	100	P/A	500
I cpna	KCL	00029	29385	3387	C	12/1-4/1	100	P/A	500
I	WEST KLIPSTEIN	00030	480	96	S	AFA	100	A	500
I	SULPHUR CANYON	00031	3300	471	C	12/1-5/31	100	P/A	500
	"	"	12765	1824	C	1/1-6/30	100	A	500
I	HUBBARD HILL	00032	4400	628	C	12/1-5/31	100	A	500
I	RAVEN PASS	00037	40	12	C	9/1-5/31	100	A	500

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
I*	OLD ARROYO	00039	440	147	C	12/1-2/14	100	P/A	500
I	RIO BRAVO	00040	401	100	C	AFA	100	A	500
I	DERBY ACRES	00041	320	92	C	12/1-3/31	100	P/A	500
I cpna	GOODWIN RANCH	00043	2660	443	C	12/1-4/1	100	P/A	500
I	SELBY RANCH	00044	4960	827	C	12/1-5/31	100	P/A	500
cpna	"	"	4807	607	C	12/1-3/31	100	P/A	500
	"	"	15421	1948	C	7/1-12/31	100	A	500
I cpna	SAUCITO RANCH	00046	3800	558	C	12/1-4/1	100	P/A	500
I*	SANTA BARB.CAN	00050	1704	113	C	12/1-2/14	100	P/A	500
I cpna	TEMBLOR-CALIENT	00053	53300	4694	C	12/1-4/1	100	P/A	500
I	WILLOW SPRG CN	00054	160	32	C	AFA	100	A	500
I	ROUND MTN ROAD	00056	480	80	C	12/1-5/31	100	P/A	500
I	SANTIAGO CREEK	00057	1974	363	C	AFA	100	A	500
	"	"	840	154	C	12/1-5/31	100	P/A	500
I	CHICO MARTINEZ	00063	2536	507	C	12/1-3/31	100	P/A	500
	"	"	1864	373	C	12/1-5/31	100	P/A	500
	"	"	3953	791	C	AFA	100	A	500
I	CEDAR CANYON	00064	562	125	C	3/1-6/30	100	A	500
	"	"	62	14	C	12/1-5/31	100	P/A	500
I	PACKWOOD-FRAN.	00065	1515	432	C	AFA	100	A	500
I*	ARROYO HONDO	00069	560	93	S	12/1-2/14	100	P/A	500
I cpna	CARRIZO RANCH	00070	4240	227	C	12/1-4/1	100	P/A	500
I	RANCHERIA	00071	194	49	C	12/1-5/31	100	A	500
I	BLUESTONE RDGE	00072	2986	747	C	12/21-6/30	100	A	500
I	CHIMINEAS RANCH	00073	8145	2715	C	12/1-5/31	100	P/A	500
I	MARICOPA RANGE	00096	800	160	C	10/15-5/15	100	P/A	500
	"	"	4564	913	C	12/1-5/31	100	P/A	500
I	MC VAN OIL FIELD	00097	200	34	C	AFA	100	A	500
I	BITTERCREEK DRG	00099	240	60	C	AFA	100	A	500
I	WESTERN MIN. RD.	00106	1479	148	C	12/1-5/31	100	P/A	500
I	CIENAGA CANYON	00107	1994	399	C	12/1-5/31	100	P/A	500
I*	SURP. ARROYO	00110	2974	992	S	12/1-2/14	100	P/A	500
I	EAST KLIPSTEIN	00114	120	24	C	3/1-9/30	100	A	500
I	POWER LINE RD	00115	215	36	S	12/1-5/31	100	P/A	500
I	DEVILS GULCH	00116	632	127	C	12/1-5/31	100	P/A	500
	51 allotments		260,231	38,110					

NO GRAZING AUTHORIZED ON THE FOLLOWING ALLOTMENTS UNDER ALTERNATIVE 3:
(ACRES AND AUMS SHOWN WILL BE SUSPENDED INDEFINITELY)

VALLEY MANAGEMENT AREA

I*	NAVAL PET. RES. I	00003	480	81	S	NG	100	P/A	
I*	KETTLEMAN HILLS	00028	40	5	S	NG	100	P/A	
	"	"	-	5	C	NG	100	P/A	
I	N. NAVAL PET.RES.	00038	2278	380	S	NG	100	P/A	
I*	OLD ARROYO	00039	40	13	C	NG	100	P/A	
I*	SANTA BARB.CAN	00050	74	5	C	NG	100	P/A	
I*	ARROYO HONDO	00069	40	7	S	NG	100	P/A	
I*	SURP/ ARROYO	00110	480	160	S	NG	100	P/A	
	7 allotments		3,432	656					

DESCRIPTION OF ABBREVIATIONS OR NOTATIONS IN GRAZING TABLES:

MGMT. STAT	=	SELECTIVE MANAGEMENT CATEGORY: I=IMPROVE, M=MAINTAIN, C=CUSTODIAL.
KIND	=	KIND OF LIVESTOCK: C=CATTLE, S=SHEEP, H=HORSES.
%FED.	=	PERCENT FEDERAL. RATE AT WHICH PUBLIC LAND FORAGE IS CHARGED TO RANCHER IN RELATION TO FORAGE PRODUCED ON RANCHER CONTROLLED PRIVATE LANDS.
RANGE TYPE	=	PREDOMINANT FORAGE TYPE: A=ANNUAL GRASSES, P=PERENNIAL SHRUBS OR GRASSES.
MIN. MULCH	=	MINIMUM RESIDUAL DRY MATTER (MULCH) REQUIRED (IN LBS./ACRE).
AFA	=	GRAZING ALLOWED AS FORAGE IS AVAILABLE; SEASON NOT SPECIFIED.
NG	=	NO GRAZING AUTHORIZED.
*	=	A PORTION OF THIS ALLOTMENT WILL NOT HAVE GRAZING AUTHORIZED.
**	=	THE MAJORITY OF THIS ALLOTMENT FALLS IN THIS MANAGEMENT AREA. IT WILL ONLY BE ANALYZED IN THIS MANAGEMENT AREA TO AVOID DUPLICATION.
cpna	=	CARRIZO PLAIN NATURAL AREA.
crmp	=	WALKER PASS COORDINATED RESOURCE MANAGEMENT PLAN.

GRAZING ALLOCATIONS UNDER ALTERNATIVE 4

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
COAST MANAGEMENT AREA									
I	RED HILL	00035	160	3	C	YL	100	A	
I	CHIMNEY ROCK	00042	800	24	C	YL	100	A	
I	LAS TABLAS	00058	1000	22	C	YL	100	A	
I	SANTA TERESA	00060	1627	400	C	YL	100	A	
I	PASO ROBLES	00108	20	3	H	1/1-3/31	100	A	
C	SANTA RITA	00010	160	16	C	3/1-9/15	100	A	
C	SOUTH MOUNTAIN	00055	186	23	C	YL	100	A	
	7 allotments		3,953	491					
SOUTH SIERRA MANAGEMENT AREA									
I**	BADGER CREEK	00009	160	37	C	4/1-10/1	100	A	
I	NORTH FORK RIV.	00017	5653	448	C	YL	100	A	600
I	HORN MOUNTAIN	00036	1483	99	C	YL	100	A	
I	GOLDPAN CAN.	00045	470	74	C	YL	100	A	
I	RANKIN RANCH	00047	2650	442	C	YL	100	A	
I**	MOUNTAIN CREEK	00048	264	88	C	YL	100	A	
I	LORAINE	00049	678	113	C	YL	100	A	
I	STUDHORSE CAN.	00051	1180	197	C	3/1-5/30	100	A	
I	CURTIS MOUNTAIN	00062	40	13	C	YL	100	A	
I	LIVEOAK CANYON	00066	80	13	C	YL	100	A	
I	FREEDOM HILL	00074	2278	539	C	3/1-5/15	85	A	300
I crmp	WALKER PASS W.	00077	14566	781	C	1/1-6/30	92	P	
I	SHORT CANYON	00082	3260	150	C	2/1-4/30	100	P/A	300
I	CHOLLA CANYON	00086	4572	1825	C	10/15-6/30	100	P/A	300
I	WAGY FLAT	00090	10746	1247	C	3/1-8/31	100	P/A	400
I	DRY CREEK	00100	160	20	C	YL	100	A	
I	SAND CANYON	00111	2501	365	C	YL	100	A	
I	JOHNS PEAK	00113	960	160	C	YL	100	A	
I	RED MOUNTAIN	00117	7400	309	C	3/1-10/30	84	A	
I crmp	SCOBIE MEADOW	00118	6890	182	C	6/1-11/1	100	P	
I crmp	CANEBRAKE	00123	9837	952	C	1/1-6/30	82	A	300
I crmp	LONG VALLEY	00124	22207	226	C	10/1-11/30	100	P	
I crmp	KENNEDY LAMONT	00125	44296	794	C	7/1-9/30	100	P	
M	CASE MOUNTAIN	00014	2031	170	C	YL	100	A	
M	MANKINS CREEK	00033	476	80	.	.	.	A	
M	KELSO PEAK	00075	2630	488	C	2/1-5/15	100	P	
M	SMITH CANYON	00080	3560	80	C	3/1-6/30	100	A	
M	LYNCH CANYON	00083	510	64	C	3/1-4/30	87	A	
M	CYRUS CANYON	00084	2110	230	C	10/1-5/15	17	A	
M	COOKS PEAK	00085	2097	225	C	3/1-5/15	64	A	
M	HAVILAH BASIN	00087	4180	356	C	YL	70	A	
	"	"	120	24	C	3/1-10/30	100	A	
M	S. COMB ROCKS	00094	399	100	H	10/1-6/30	100	A	
M	BURNT POINT	00102	1184	79	C	YL	100	A	
M	WASHBURN COVE	00104	710	118	C	10/1-4/14	100	A	
C	BLOSSOM PEAK	00005	80	7	C	3/1-6/1	100	A	

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
C	LIVE OAK PASS	00012	280	70	C	6/1-9/30	100	A	
C	RANCHERIA CRK.	00023	545	115	C	4/1-10/1	100	A	
C	BEAR CREEK	00024	452	10	C	YL	100	A	
C	N. COMB ROCKS	00034	230	39	C	YL	100	A	
C	THOMPSON RIDGE	00052	1250	63	C	5/1-7/31	100	A	
C	LOCO BILL CAN.	00059	640	82	C	4/1-10/1	100	A	
C	OAK GROVE	00061	2841	237	C	4/1-9/30	100	A	
C crmp	SACATAR MEAD.	00076	6320	96	C	10/1-10/31	100	P	
C	AIRPORT	00078	2565	411	C	3/1-5/15	86	A	
	"	"	-	150	C	3/1-5/15	100	A	
C	FAY CANYON	00079	361	64	C	3/1-4/30	100	A	
C	NELLIE'S NIPPLE	00081	3000	810	C	3/15-10/14	100	A	
C	BODFISH	00089	114	14	C/H	3/1-9/30	100	A	
C	PROGRESS GULCH	00095	480	80	C	3/1-6/30	100	A	
C	MILK RANCH PEAK	00103	1980	132	C	4/15-6/30	100	A	
C	BALD EAGLE PEAK	00119	1960	168	C	7/1-2/28	100	A	
C crmp	SPANISH NEEDLE	00120	3160	40	C	3/1-4/30	100	P	
	51 allotments		188,596	13,676					
VALLEY MANAGEMENT AREA									
I	OILFIELD ROAD	00002	440	73	S	1/1-7/1	100	A	
I	NAVAL PET. RES. I	00003	1518	253	S	11/1-5/31	100	A	
I	CATSKIN	00004	880	220	C	YL	100	A	
I	CUYAMA 2	00006	480	80	C	YL	100	A	
I	FREEBORN MT.	00007	2400	344	C	YL	100	A	
I	PLEITO	00008	4314	1362	C	YL	100	A	
I	COTTONWOOD DR	00011	320	80	C	YL	100	A	
I	TEMBLOR CREEK	00013	328	82	C	YL	100	A	
I	NORTH TEMBLOR	00015	31049	3478	C	YL	100	P/A	500
	"	"	-	3479	S	YL	100	P/A	500
I	OIL FIELD	00016	6752	500	S	10/1-6/1	100	A	
I cpna	WASHBURN RNCH	00018	8400	643	C	12/1-4/1	100	P/A	500
I	BUENA VISTA CRK.	00019	640	107	S	1/15-6/30	100	A	
I	ELEPHANT BACK	00020	80	16	C	YL	100	A	
I	FRAZER VALLEY	00021	2060	206	S	YL	100	A	
I	MC KITTRICK SMT	00022	160	40	C	YL	100	A	
I cpna	PAINTED ROCK	00026	15186	900	C	12/1-4/1	100	P/A	500
I	BITTERWATER VAL.	00027	80	12	S	9/1-5/31	100	A	
I	KETTLEMAN HILLS	00028	4193	788	C	YL	100	A	
	"	"	-	200	S	3/1-5/31	100	A	
I cpna	KCL	00029	29385	3387	C	12/1-4/1	100	P/A	500
I	WEST KLIPSTEIN	00030	480	96	S	YL	100	A	
I	SULPHUR CANYON	00031	16065	2295	C	1/1-6/30	100	P/A	500
I	HUBBARD HILL	00032	4400	628	C	3/1-4/30	100	A	
I	RAVEN PASS	00037	40	12	C	9/1-5/31	100	A	
I	N. NAVAL PET.RES.	00038	2278	380	S	YL	100	A	
I	OLD ARROYO	00039	480	160	C	YL	100	A	
I	RIO BRAVO	00040	401	100	C	YL	100	A	
I	DERBY ACRES	00041	320	92	C	YL	100	A	
I cpna	GOODWIN RANCH	00043	2660	443	C	12/1-4/1	100	P/A	500
I	SELBY RANCH	00044	20381	2575	C	7/1-12/31	100	P/A	500
cpna	"	"	4807	607	C	12/1-3/31	100	P/A	500
I cpna	SAUCITO RANCH	00046	3800	558	C	12/1-4/1	100	P/A	500
I*	SANTA BARB. CAN	00050	1778	118	C	11/1-5/1	100	A	

MGMT. STAT.	ALLOTMENT NAME	ALLOT. NUMBER	ACRES	AUMS	KIND	SEASON OF USE	%FED.	RANGE TYPE	MIN. MULCH
I cpna	TEMBLOR-CALIENT	00053	53300	4694	C	12/1-4/1	100	P/A	500
I	WILLOW SPRG CN	00054	160	32	C	YL	100	A	
I	ROUND MTN ROAD	00056	480	80	C	11/1-2/28	100	A	
I	SANTIAGO CREEK	00057	2814	517	C	YL	100	A	
I	CHICO MARTINEZ	00063	8353	1671	C	YL	100	P/A	400
I	CEDAR CANYON	00064	624	139	C	3/1-6/30	100	A	
I	PACKWOOD-FRAN.	00065	1515	432	C	YL	100	A	
I	ARROYO HONDO	00069	600	100	S	3/1-5/1	100	A	
I cpna	CARRIZO RANCH	00070	4240	227	C	12/1-4/1	100	P/A	500
I	RANCHERIA	00071	194	49	C	12/1-5/31	100	A	
I	BLUESTONE RDGE	00072	2986	747	C	12/21-6/30	100	A	
I	CHIMINEAS RANCH	00073	8145	2715	C	4/16-12/31	100	P/A	500
I	MARICOPA RANGE	00096	5364	1073	C	10/1-5/31	100	P/A	500
I	MC VAN OIL FIELD	00097	200	34	C	YL	100	A	
I	BITTERCREEK DRG	00099	240	60	C	YL	100	A	
I	WESTERN MIN. RD.	00106	1479	146	C	YL	100	A	
I	CIENAGA CANYON	00107	1994	399	C	10/1-5/31	100	A	
I	SURP. ARROYO	00110	3454	1152	C/S	10/1-4/30	100	A	
I	EAST KLIPSTEIN	00114	120	24	C	3/1-9/30	100	A	
I	POWER LINE RD	00115	215	36	S	3/1-6/30	100	A	
I	DEVILS GULCH	00116	632	127	C	YL	100	A	
	52 allotments		263,664	38,766					

DESCRIPTION OF ABBREVIATIONS OR NOTATIONS IN GRAZING TABLES:

MGMT. STAT = SELECTIVE MANAGEMENT CATEGORY: I=IMPROVE, M=MAINTAIN, C=CUSTODIAL.

KIND = KIND OF LIVESTOCK: C=CATTLE, S=SHEEP, H=HORSES.

%FED. = PERCENT FEDERAL. RATE AT WHICH PUBLIC LAND FORAGE IS CHARGED TO RANCHER IN RELATION TO FORAGE PRODUCED ON RANCHER CONTROLLED PRIVATE LANDS.

RANGE TYPE = PREDOMINANT FORAGE TYPE: A=ANNUAL GRASSES, P=PERENNIAL SHRUBS OR GRASSES.

MIN. MULCH = MINIMUM RESIDUAL DRY MATTER (MULCH) REQUIRED (IN LBS./ACRE).

NG = NO GRAZING AUTHORIZED.

* = A PORTION OF THIS ALLOTMENT WILL NOT HAVE GRAZING AUTHORIZED.

** = THE MAJORITY OF THIS ALLOTMENT FALLS IN THIS MANAGEMENT AREA. IT WILL ONLY BE ANALYZED IN THIS MANAGEMENT AREA TO AVOID DUPLICATION.

YL = GRAZING ALLOWED THROUGHOUT THE YEAR OR "YEAR LONG".

cpna = CARRIZO PLAIN NATURAL AREA.

crmp = WALKER PASS COORDINATED RESOURCE MANAGEMENT PLAN.

GRAZING ALLOCATIONS UNDER ALTERNATIVE 5

Allocations under this alternative would be the same as those presented under alternative 3.

Appendix D-2 Guidelines to Grazing Management

The following guidelines contain information on how the final allocations in appendix D-1 were obtained for a given allotment. These guidelines were established to track the specific differences between alternatives and maintain the intent or objectives of each alternative as conditions or designations of an allotment changed, as new allotments were authorized in the future, or as new concerns arose. The guidelines were applied to allotments based on the concerns present.

ALTERNATIVE 1 (NO ACTION)

LOCATION	UTILIZATION AND MULCH	SEASONAL RESTRICTION
Carrizo Plain Natural Area.	Require a minimum of either 500 or 700 pounds per acre of mulch. Allow no more than 20% utilization of current years growth of perennial species.	Season of use: December 1 to April 1 (Three pasture rest/rotation system where 2/3 of the pastures will be grazed each year; 1/3 of the pastures will have cattle on them at any one time. Turn on date for a use pasture will be alternated annually between early, (12/1) and late, (2/15) entry.) No grazing in known CACA and in one LECO population.
Known habitat for CACA, ERKE, LECO, OPTR and conservation area for ERKE.	No grazing will be authorized unless research shows some grazing is necessary.	If new populations found, restriction will be added at the next annual authorization. If new CACA, attempt to protect immediately.
Known and potential habitat for SJKF, BNLL, GKR, TKR, KPSM, and ERHO, and potential habitat for OPTR, CACA and LECO.	Require at least 500 pounds per acre of mulch on all allotments in these locations. If there is active annual grass growth and greater than 500 pounds per acre of mulch, allow livestock turn out or; If there is no active annual grass growth, and greater than 600 pounds per acre of mulch, allow livestock turn out. For all allotments in saltbush scrub, require 500 pounds per acre of mulch and	In known GKR areas no grazing April 1 to June 15 to avoid impacts to haystacks. (known = occurrence recorded on resource area maps plus one mile for missed occurrence and a second mile for movement and time lag for implementation of extended prescription). If determine no haystack year, restriction may not apply, but Bureau may apply restriction even if not haystacking. GKR regions will be used to evaluate haystacking in Carrizo, Elkhorn, Buena Vista Valley,

LOCATION	UTILIZATION AND MULCH	SEASONAL RESTRICTIONS
(continued)Known and potential habitat for SJKF, BNLL, GKR, TKR, KPSM, and ERHO, and potential habitat for OPTR, CACA and LECO.	seasonal restrictions (next column) for livestock removal. Monitor utilization on saltbush to ensure that the actual utilization level does not exceed 50% before the 500 pound mulch level or seasonal restriction is met. Allow no more than 50% utilization of current annual year's growth on all other perennial species.	Kettleman/Avenal. Need for restriction will be reviewed prior to annual authorization. If new occurrence is discovered, restriction will not be added until next annual authorization. In known ERHO and conservation areas for CACA, ERHO, LECO, no grazing February 15 to April 30.
Potential habitat for Condor and areas without T&E species.	Use existing mulch guidelines from South Sierra Foothills MFP and Coast/Valley RMP to apply on all allotments in these locations. Required mulch levels vary from 300 to 600 pounds per acre (see allocations). For allotments in the Temblor-Caliente Management Area of the Coast/Valley EIS and allotments classified as perennial or annual/perennial in the South Sierra MFP, which are also out of T&E habitat, allow no more than 50% utilization of current year's annual growth for all perennial species. If there is active annual grass growth and the required mulch level is met, consider livestock turn out, or; if there is no active annual grass growth, and the required mulch level is exceeded by 100 pounds per acre, consider livestock turn out.	No seasonal restrictions.

LOCATION	UTILIZATION AND MULCH	SEASONAL RESTRICTIONS
Walker Pass Coordinated Resource Management Plan.	Require at least 300 pounds per acre of mulch. Allow no more than 50% utilization of current year's annual growth for perennial species in perennial forage allotments.	Season of use varies from allotment to allotment.
Riparian areas (excluding those in the Walker Pass CRMP).	No specific measures.	No specific measures.
Currently unalloted areas classified as available for grazing.	Grazing may be allowed if the appropriate prescription from above can be implemented to meet RMP objectives, and monitoring can be accomplished to verify prescription implementation and effectiveness.	See previous column.

ALTERNATIVE 2 (NATURAL RESOURCE PROTECTION)

LOCATION	UTILIZATION AND MULCH	SEASONAL RESTRICTION
Carrizo Plain Natural Area.	Same as Alternative 1.	Same as Alternative 1.
Known habitat for CACA, LECO, OPTR, ERHO, and ERKE, and conservation areas for CACA, LECO, OPTR, ERHO and ERKE.	No grazing may be authorized unless research shows that some grazing is necessary.	See previous column.
Known or potential habitat for SJKF, BNLL, GKR, TKR, KPSM, and potential habitat outside of conservation areas for CACA, LECO, OPTR, ERHO.	A minimum of 700 pounds per acre of mulch is required on all allotments in these locations prior to livestock turn out. Require active annual grass growth and more than 700 pounds per acre of mulch, or; if there is no active annual grass growth, require at least 800 pounds per acre of mulch. Allow no more than 20% utilization of the current year's annual growth on saltbush and 40% on other perennial species.	Potential Habitat for LECO and CACA, no grazing February 15 to April 30. Potential Habitat for ERHO, no grazing February 15 to May 30. GKR seasonal restriction in known GKR areas (see Alternative 1). "Green" season of use (Valley = December 1 to April 1, Coast and South Sierra = December 1 to May 31, perennial allotments = November to May 31). If 1-2" active annual grass growth occurs outside authorized "green" season in annual or annual/perennial forage allotments, may consider temporary non-renewable grazing authorization. If shrubs and perennial grasses have initiated active current year's annual growth in perennial forage allotments and soil moisture adequate to continue growth, allow livestock turn out. If last year's growth still available and utilization less than 40% in perennial forage

LOCATION	UTILIZATION AND MULCH	SEASONAL RESTRICTIONS
(continued)Known or potential habitat for SJKF, BNLL, GKR, TKR, KPSM, and potential habitat outside of conservation areas for CACA, LECO, OPTR, ERHO.		allotments, allow livestock turn out.
If other species get listed.	Prescription is as above, or a new prescription will be developed that takes into consideration specific species requirements.	See previous column.
Potential habitat for Condor and areas without T&E species.	Require a minimum of 500 pounds per acre of mulch in annual or annual/perennial allotments; If there is active annual grass growth and more than 500 pounds per acre of mulch, consider livestock turn out, or; if no active annual grass growth and more than 600 pounds per acre of mulch, consider livestock turn out. Allow no more than 20% utilization of current year's annual growth on saltbush and 40% on other perennials.	"Green" season of use (Valley = December 1 to April 1, Coast and South Sierra = December 1 to May 31, Perennial allotments = November to May 31). If 1-2" active annual grass growth occurs outside authorized "green" season in annual or annual/perennial forage allotments, may consider temporary non-renewable grazing authorization. If shrubs and perennial grasses have initiated active current year's annual growth in perennial forage allotments and soil moisture adequate to continue growth, allow livestock turn out. If last year's growth still available and utilization less than 40% in perennial forage allotments, allow livestock turn out.
Walker Pass Coordinated Resource Management Plan.	Same as Alternative 1.	Same as Alternative 1.
Currently unalloted areas classified as available for grazing.	Will remain unalloted.	Will remain unalloted.

ALTERNATIVE 3/5 (ADMINISTRATIVE ADJUSTMENT/PREFERRED)

LOCATION	UTILIZATION AND MULCH	SEASONAL RESTRICTION
Carrizo Plain Natural Area.	Same as Alternative 1.	Same as Alternative 1.
Known habitat for CACA, ERKE, LECO, and OPTR, conservation area for ERKE.	Same as Alternative 1.	Same as Alternative 1.
Known ERHO habitat, or potential habitat for LECO, OPTR, CACA and ERHO.	Require at least 500 pounds per acre of mulch on all allotments within these locations. If there is active annual grass growth and more than 500 pounds per acre of mulch, consider livestock turn out. If there is no active annual grass growth and more than 700 pounds per acre of mulch, consider livestock turn out. Allow no more than 20% utilization of current year's annual growth on saltbush and 50% on other perennial species.	Conservation areas for LECO or CACA no grazing February 15 to April 30. Potential habitat inside conservation areas for ERHO or known ERHO, no graze February 15 to May 30 (or option to fence out of pasture). In saltbush scrub, "green" season of use December 1 to May 31. If new populations found, restriction added at next annual authorization. If new CACA, attempt to protect immediately.
If other plants get listed.	Prescription as above or new prescription that takes into consideration specific species requirements.	See previous column.
Known or potential habitat for SJKF, BNLL, GKR, TKR and KPSM.	Require at least 500 pounds per acre of mulch on all allotments within this category, If there is active annual grass growth and more than 500 pounds per acre of mulch, allow livestock turn out, or; if there is no active annual grass growth and more than 600 pounds per acre of mulch, allow livestock turn	GKR seasonal restriction in known GKR areas (see Alternative 1). In saltbush scrub, "green" season of use December 1 to May 31. If 1-2" active annual grass growth outside above "green" season of use may consider temporary non-renewable grazing authorization.

LOCATION	UTILIZATION AND MULCH	SEASONAL RESTRICTIONS
(continued) Known or potential habitat for SJKF, BNLL, GKR, TKR and KPSM.	out. Allow no more than 20% utilization of current year's annual growth on saltbush and 50% on other perennial species. (In saltbush areas, if condition of saltbush meets criteria necessary for Le Conte's Thrasher and if 50% utilization will allow maintenance of this saltbush condition, utilization may be changed to 50%).	
Potential habitat for Condor, and areas without T&E species.	Required mulch levels vary from 300 to 600 pounds per acre (see allocations). If there is active annual grass growth and the required mulch level is met, consider livestock turn out. If there is no active annual grass growth and the required mulch level is exceeded by 100 pounds per acre of mulch, consider livestock turn out. Allow no more than 50% utilization of current year's annual growth on perennial species in perennial or annual/perennial forage allotments.	No seasonal restrictions.
Walker Pass Coordinated Resource Management Plan.	Same as Alternative 1.	Same as Alternative 1.
Riparian areas outside of the Walker Pass CRMP.	Allow no more than 50% utilization of current year's annual growth for upland perennial species. Allow no more than 20%	Grazing only during the "cool" season (November 1 to May 31) in areas of poor to fair condition. Existing season of use in

LOCATION	UTILIZATION AND MULCH	SEASONAL RESTRICTIONS
(continued) Riparian areas outside of the Walker Pass CRMP.	utilization on shrubs and 40% utilization on perennial grasses in riparian zone if it is in poor or fair condition (based on resource area riparian inventory); allow existing utilization, not to exceed 50% in riparian zone, if riparian resources in good or excellent condition.	areas in good or excellent condition. Adjust stocking rate to minimize mechanical damage to stream banks. Implementation options: 1. Use prescription for entire pasture that contains riparian, or; 2. Leave riparian unfenced and monitor riparian for above prescription, or; 3. Fence riparian out and apply above prescription, or; 4. Fence riparian and exclude grazing.
Currently unalloted areas classified as available for grazing.	Grazing will be allowed if the appropriate prescription from above can be implemented to meet RMP objectives and monitoring can be accomplished to verify prescription implementation and effectiveness.	See previous column.

ALTERNATIVE 4 (DEVELOPMENT)

LOCATION	UTILIZATION AND MULCH	SEASONAL RESTRICTION
Carrizo Plain Natural Area.	Same as Alternative 1.	Same as Alternative 1.
All T&E habitat outside the CPNA.	No special requirements for T&E species. Six allotments outside of the CPNA have minimum mulch levels of 400 or 500 pounds per acre as previously designated (see allocations). On all allotments within the Temblor-Caliente Management Area of the Coast/Valley EIS or classified as perennial or annual/perennial in the South Sierra Foothill MFP, allow a maximum of 50% utilization of the current year's annual growth on perennial species. All other allotments have no prescribed mulch or utilization levels.	No seasonal restrictions.
Potential habitat for Condor and areas without T&E species.	Use existing mulch guidelines from South Sierra Foothills MFP and Coast/Valley RMP. Five allotments outside of the CRMP area have previously prescribed minimum mulch levels ranging from 300 to 600 pounds per acre.(see allocations) On all allotments within the Temblor-Caliente Management Area of the Coast/Valley EIS or classified as perennial or annual/perennial in the South Sierra Foothill MFP, allow a maximum of 50% utilization of the current annual year's growth on perennial species. All other allotments have no prescribed mulch or utilization levels.	No seasonal restrictions.
Walker Pass Coordinated Resource Management Plan.	Same as Alternative 1.	Same as Alternative 1.

LOCATION	UTILIZATION AND MULCH	SEASONAL RESTRICTIONS
Riparian areas (excluding the Walker Pass CRMP).	No specific measures.	No specific measures.
Currently unalloted areas classified as available for grazing.	Same as Alternative 1.	Same as Alternative 1.

Appendix D-3 Selective Management Categories for Grazing Allotments

The Bureau began categorizing allotments upon the issuance of Instruction Memorandum No. 82-292 on March 5, 1982. That memorandum established the selective management approach to rangeland management. The selective management policy is intended to provide our agency with a logical and consistent system of prioritizing our management implementation needs by identifying those allotments needing the most management emphasis in regards to our capabilities at hand. Implementation of the selective management policy requires that all grazing allotments be placed in one of three categories:

Improve (I): Objective is to improve the current unsatisfactory condition.

Maintain (M): Objective is to maintain the current satisfactory condition.

Custodial (C): Objective is to manage custodially, while protecting existing resource values.

The following standard and optional criteria are being used in the Caliente Resource Area to place allotments into the three identified categories. While the intent remains the same, the description and depth of these criteria have been modified from previous land use plans in order to ensure that the process of categorization is responding to current conditions and issues within the Resource Area.

STANDARD CRITERIA USED TO CATEGORIZE GRAZING ALLOTMENTS

Present Management

Is present management satisfactory to meet long term management objectives? If resource conditions need improving, will a change in present management practices, such as improving livestock distribution or adjusting or deferring the season of livestock use, effectively accomplish the desired results?

Resource Potential

Does the allotment have high or moderate perennial forage potential? Is the forage resource (annual or perennial) on the allotment producing at, near, or below it's potential?

Resource Use Conflicts/ Controversy

Do serious resource use conflicts exist which require special management emphasis? Is the allotment important to many user groups? Do special or sensitive resources, including special status species, exist which may require intensive management?

Economic Return

What is the likelihood of positive economic return on public investment? Are desired resource objectives and proposed changes economically feasible?

Amount of Public Land

Does the percentage of Federal land within the management unit restrict implementation of desired changes? Is management change infeasible due to limited public lands within the management unit?

OPTIONAL CRITERIA

Cooperation

Does the grazing operator maintain existing projects and will future projects be maintained? Is the grazing operator willing to work with the Bureau in implementing management changes?

Range Condition

Is the perennial vegetation within the allotment in satisfactory ecological site condition? Are annual ranges within the allotment being significantly over or under utilized, resulting in decreased production or an increase in the less desirable forage species?

Each allotment is rated separately based on the described standard criteria and the following scorecard:

STANDARD CRITERIA	SELECTIVE MANAGEMENT CLASS I	M	C
Present Management:	Unsatisfactory	Satisfactory	Change not feasible
Resource Potential:	Below optimum potential	Near or at potential	Near potential
Resource Conflicts:	Conflicts evident	Conflicts limited	Conflicts minimal
Economic Return:	Positive return	Possible return	Return not likely
Amount of Public Land:	> 60% change possible	59%-10% change restricted	< 10% change not feasible
OPTIONAL CRITERIA	I	M	C
Cooperation:	High level of cooperation	Generally cooperative	Low level of cooperation
Range Condition:	Poor - Fair	Satisfactory	Satisfactory

By totalling the scores under each management category, an obvious category assignment is usually indicated. However, in the instance that the scores between two management classes is even after applying the standard criteria, then the optional criteria are used to make the final category assignment.

The identification of management categories is a dynamic process. When the resource situation of an allotment changes following the implementation of management decisions, the allotment may be recategorized. Monitoring data, collected at level commensurate with the allotment's category is generally required to recategorize an allotment. The monitoring required to support recategorization

need not be limited to the type of monitoring typically used to manage livestock grazing (i.e., utilization, mulch, actual use, weather, trend and condition). Information from any source (e.g., wildlife, watershed, special status plant and animal, or archeological monitoring) may serve to make apparent and justify the need for recategorization. This action would normally take place during the land use planning process, the Range Program Summary (RPS) and subsequent RPS updates, but could be accomplished any time with the proper documentation and consultation.

SELECTIVE MANAGEMENT GUIDELINES

Allotments grouped into selective management categories will be managed as outlined below:

Category I - Improve

- Active preference adjustment may be recommended in land use plan.
- Will usually involve Mulch Management (see section on Mulch Management for explanation).
- Will have and Allotment Management Plan (AMP).
- Allotment mulch and/or utilization will be monitored annually.
- Priority given for range improvement funding.

Category M - Maintain

- Active preference will not be initially adjusted.
- Will only involve Mulch Management if allotment is already managed under that system.
- May have an Allotment Management Plan (AMP).
- Allotment mulch and/or utilization will be monitored as funding allows, unless Mulch Management system dictates regular monitoring.

Category C - Custodial

- Active preference will not be initially adjusted.
- Will not involve Mulch Management.
- Will usually not have an Allotment Management Plan (AMP).
- Cursory monitoring will be accomplished as funding allows.

Appendix D-4 Grazing Management for Mediterranean Annual Ranges

Annual rangelands differ from perennial rangelands in that they are primarily composed of annual plants. Annual plants respond each year to conditions which influence plant germination, early plant growth, and establishment, such as rainfall, temperature and soil type. California's annual grasslands vary considerably in productivity and species composition, reflecting the great geographical diversity of the state's average annual precipitation, temperatures, and soils. Although controlling these factors is unimaginable, seasonal management of other variables in conjunction with a knowledge of specific site differences can significantly influence the subsequent year's annual production. One variable which can be most controlled by management is residual dry matter (RDM - the amount of dry plant material left on the ground from the previous year's growth, expressed in pounds of residual oven dried material per acre). By managing the amount of RDM, or natural mulch, we can effectively influence the soil's water holding capacity and organic content. This in turn will affect the micro-environment at the soil surface and ultimately enhance seed germination and seedling establishment. Proper RDM levels are also important to protect the soil, and can maintain soil erosion at natural levels. All of these factors contribute to optimizing seedbed conditions for annual plants. "Species composition and production of annual ranges is dictated both by the potential of a given site, each season's rainfall, and the appropriate management of the natural mulch" (Bartolome, et al. 1980).

By setting minimum mulch or RDM levels and measuring these levels before livestock are allowed to begin utilizing the annual forage, we can better ensure that the soil is protected and the range is highly productive for livestock and wildlife in the upcoming year. Managing for mulch will also allow the authorized grazing use to be adjusted with the annual forage production. Increased grazing would be allowed on good forage years, and less grazing would be allowed on poor forage years. Livestock would be removed when the minimum residual mulch level is reached. The Caliente Resource Area has developed the following table of mulch levels to be applied to each allotment. These levels are based upon U.C. Cooperative Extension guidelines, Soil Conservation Service guidelines, and local precipitation and soils.

MINIMUM RESIDUAL MULCH LEVEL REQUIREMENTS

Avg. Annual Precipitation in Inches	Soil Type	% Slope			
		0-25%	26-50%	51-75%	76-100%
Less than 7 inches:	Any	200 lbs/ac.	300 lbs/ac.	750 lbs/ac.	600 lbs/ac.
7 to 15 inches:	Any	300 lbs/ac.	400 lbs/ac.	500 lbs/ac.	600 lbs/ac.
16 to 80 inches:	Red soils, clays, & sandy soils:	500 lbs/ac.	500 lbs/ac.	750 lbs/ac.	750 lbs/ac.
	Loams & silt soils:	500 lbs/ac.	750 lbs/ac.	900 lbs/ac.	1000 lbs/ac.
80+ inches:	Red soils, clays & sandy soils:	500 lbs/ac.	750 lbs/ac.	850 lbs/ac.	950 lbs/ac.
	Loams & silt soils:	500 lbs/ac.	900 lbs/ac.	1000 lbs/ac.	1200 lbs/ac.

Appendix D-5 Guidelines for Temporary Modification of Grazing Levels

Drought

During periods of drought or drought recovery, due to the amount of annual precipitation, the timing of the precipitation received, and the duration of the period with below normal precipitation, normal allowable utilization levels may not be sufficient to sustain or provide recovery of ecosystems. These levels may be changed to provide protection for sensitive resources.

When data from research, monitoring, or observations show that plant or animal stress due to existing or recent drought conditions is evident, a temporary modification of current grazing authorizations and at least one season of reduced grazing levels will be implemented to alleviate any additional impacts from grazing.

During saltbush (*Atriplex* spp.) recruitment years that coincide with drought years, when new seedlings of saltbush are observed to occur on an allotment, temporary modifications or suspensions to current grazing authorizations may be implemented for a period up to one full growing season to assist in seedling establishment.

When making temporary suspensions or authorizing temporary additional use, the amount of current forage production, the species composition, and the projected forage yet to be produced during the remaining growing season will be considered in order to protect the soil stability and meet RMP objectives.

High Production

If authorized grazing use is made and additional forage is still available above the normal allowable utilization levels, temporary non-renewable use may be considered on a case-by-case basis upon receipt and approval of an application for additional use.

In periods of drought recovery as defined above, livestock use may be considered if mulch exceeds 1,000 pounds of residual dry matter per acre and is composed primarily of grasses.

Appendix D-6 Guidelines for New Grazing Allotments

1) Applicant must be qualified as per 43 CFR 4110.1 and 4110.2-1. Conflicting applications for new allotments will be handled as per 43 CFR 4130.1-2. (Priority will be given to those applicants who have had a previous authorization canceled for reasons other than non-compliance with 43 CFR.)

2) Public lands applied for are shown as available for grazing on Map ___.

3) The use level applied for is within the estimated carrying capacity for the public lands as determined by the authorized officer.

4) The season of use applied for is compatible with the forage resource requirements for good vigor, reproduction and sustainability.

5) Monitoring can be accomplished at the appropriate levels to verify prescription implementation and effectiveness.

6) Range improvements needed for proper management must be in place or constructed prior to activation of grazing authorizations.

Appendix D-7 Strategy for Grazing Monitoring

Administrative Monitoring

Prior to the beginning of grazing for the season, representative allotments will be sampled to determine initial mulch levels and the amount of green forage. Allotments will first be grouped into regional areas that have similar vegetation and rainfall characteristics. Representative allotments will be used as indicator allotments for determining mulch and "green up" (active annual grass growth) for that region. It is estimated that approximately one out of ten allotments will actually be visited prior to livestock turn out each year.

During the grazing season, individual allotments or representative allotments will be visited to determine utilization levels on key perennial plants and mulch levels. Grazing will be terminated if key areas within allotments or representative allotments show that the desired mulch or utilization levels have been reached. Allotments containing large public land acreages will be grouped into similar regions, and a (the) representative allotment(s) for that region will be monitored. All other allotments will be inspected as they are encountered through the course of other field work.

Areas with seasonal restrictions will be monitored to verify that livestock have been removed from the area in a timely manner. This will be done through the course of monitoring mulch, or as the allotments are encountered through the course of other field work.

Resource Trend Monitoring

Areas known to be occupied by listed species will be field visited annually to document general observations.

Selected listed plant populations will be field visited at the same time(s) each year to map population extent, estimate total number of individuals, estimate number of individuals in various phenological stages, and document other general observations.

In conjunction with other field duties, periodic field visits will be made to areas known to be occupied by listed animal species. Observations regarding the apparent presence or absence of a species, condition of the habitat, collapse of burrows, or other general observations of positive and negative factors will be documented.

Long term trend studies will be established as time and funding permit. Frequency transects may be utilized to document change in perennial plant populations. Small study exclosures may be erected on selected representative ecological sites. It is estimated that new long-term monitoring studies will not be initiated until forage utilization studies have all been established.

APPENDIX E - MINERALS

Appendix E Introduction

Appendix E-1 Geothermal

Appendix E-2 Solid Leasable Minerals - Phosphate & Sodium

Appendix E-3 Locatable Minerals

Appendix E-4 Mineral Materials

Appendix E - Minerals Introduction

This appendix summarizes the availability of public land and Federal mineral estate for mineral development. Included are displays for geothermal resources, solid leasable minerals (in this case, phosphate and sodium), locatable minerals, and mineral materials (primarily sand and gravel).

Maps prepared by the U. S. Geological Survey and maintained by BLM depict potential for leasable minerals: sodium/ potassium, phosphate, and geothermal resources. This information, as well as the maps and reports of Albers and Fraticelli (1984), Albers (1981), and Smith (1971, 1974), and computer data bases of mineral locations maintained by the Bureau of Mines, and U. S. Geological Survey, provided the framework for the following mineral potential tables for mineral resources. Numerous other maps and reports were consulted to prepare the Reasonable Foreseeable Development scenarios and mineral potential maps on which the following tables are based. In all instances, potential refers to potential for development. This differs from the oil and gas potential tables (Appendix G-1). Many areas of known mineral occurrences, including past producers, have moderate or low potential for development. The reason may be that the deposits were small, or only economic during periods of artificially high prices. Many tungsten and chromite deposits fall into this category.

Applications for the extraction of solid leasable minerals and mineral materials may be approved in the absence of resource conflicts. Approval is discretionary, but authorizations must be in conformance with the intent and direction of the RMP. Approval of applications is contingent upon adequate NEPA analysis, which may require delays in order to allow for inventories of sensitive species in the proper season. The application of major constraints to a permit or lease other than for oil and gas (covered in Appendix G), in those areas where they are required by this plan, may include but is not limited to: movement of the proposed activity to avoid plant and animal species on the State or Federal threatened or endangered species lists; movement to avoid species that are proposed or are candidates for Federal listing; timing delays or restrictions to accommodate raptor nesting requirements, the needs of listed species, or the transplanting of sensitive plant species; and off-site mitigation or compensation for impacts to listed species.

The following tables in the minerals introduction show limitations to development. As shown, designated Wilderness Areas are under a non-discretionary closure to all forms of mineral development. Wilderness Study Areas are open to the location of mining claims, and are open to solid leasable minerals, and mineral materials with major constraints. They are closed to geothermal leasing. Mineral estate reserved to the United States within lands patented under the Recreation and Public Purposes Act, and the Small Tract Act (Appendix C-7) are under a non-discretionary closure to mineral location. While these lands are technically open to solid leasable and salable minerals, for all practical matters they are closed, and are reflected as such in the tables. These lands are considered to have major constraints to oil and gas and geothermal leasing and constitute about 5,000 acres. About 5,000 acres of BLM land in the vicinity of the Hopper Mountain National Wildlife Refuge are considered to have major constraints to oil and gas and geothermal development. About 370,000 acres of BLM administered mineral estate is within the range of Federally listed species habitat. This area will impose major constraints to oil/gas, geothermal, solid leasable, and salable mineral development in all alternatives except for Alternative 4, (Development). Rivers, streams, creeks and Soda Lake which are potentially eligible for inclusion in the Wild and Scenic River System will affect about 15,000 acres of land by closing or limiting it to all forms of mineral development.

MINERAL AVAILABILITY SUMMARY TABLES

The abbreviations used in the tables are defined as follows:

O/G: Oil/Gas L: Locatable Minerals S: Salable Minerals
G: Geothermal Resources SL: Solid Leasable Minerals WSA: Wilderness Study Areas
ACEC: Areas of Critical Environmental Concern R&PP: Recreation and Public Purposes Act/ Leases or Patents

NON DISCRETIONARY CLOSURES (ACRES)					
AREA	ALT. 1	ALT. 2	ALT. 3	ALT. 4	ALT. 5
WILDERNESS AREAS (O/G, G, SL, S, L)	1,800	1,800	1,800	1,800	1,800
WSAs RECOMMENDED (O/G, G, SL, S, L)	39,300	39,300	39,300	39,300	39,300
WSAs NOT RECOMMENDED (O/G, G)	74,300	74,300	74,300	74,300	74,300
WILD & SCENIC RIVERS (L)	15,000	15,000	15,000	15,000	15,000
R & P P, SMALL TRACT (SL, S, L)	5,000	5,000	5,000	5,000	5,000

DISCRETIONARY CLOSURES (ACRES)					
AREA	ALT. 1	ALT. 2	ALT. 3	ALT. 4	ALT. 5
ACECs (O/G, G)	0	159,200	1,000	0	3,000
ACECs (SL)	3,000	128,600	75,000	3,000	96,300
ACECs (S)	4,000	32,400	9,000	4,000	9,000
ACECs (L)	7,000	34,700	12,000	9,000	11,000

MAJOR CONSTRAINTS (ACRES)					
AREA	ALT. 1	ALT. 2	ALT. 3	ALT. 4	ALT. 5
T. & E. SPECIES HABITAT (O/G, G, SL, S,)	409,000	409,000	409,000	0	409,000
ACECs (O/G, G)	77	78,000	209,000	77	160,000
ACECs (SL)	0	147,000	147,000	5,600	100,200
ACECs (S)	0	212,000	135,700	0	100,300
HOPPER MOUNTAIN (O/G, G, SL, S)	5,000	5,000	5,000	5,000	5,000
WILD & SCENIC RIVERS (O/G, G, SL, S)	15,000	15,000	15,000	15,000	15,000
VRM CLASS II	5,400	127,000	83,700	82,000	90,000
R&PP, SMALL TRACT (O/G, G)	5,000	5,000	5,000	5,000	5,000

MINERAL RESOURCE POTENTIAL TABLES

The tables on the following pages display the number of acres of BLM administered mineral estate, by potential, in the various management categories. Each table illustrates one alternative. Stipulations to be used for geothermal development are the same as those used for oil and gas, and are included in Appendix G-3.

Appendix E-1 Geothermal

ALTERNATIVE 1 - NO ACTION

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS					
COAST	0	0	55,000	0	55,000
VALLEY	0	0	23,000	0	23,000
SOUTH SIERRA	1,000	92,000	184,000	29,000	306,000
TOTAL	1,000	92,000	262,000	29,000	384,000
MINOR CONSTRAINTS					
SOUTH SIERRA	0	0	0	0	0
TOTAL	0	0	0	0	0
MAJOR CONSTRAINTS					
COAST	0	0	14,000	0	14,000
VALLEY	0	0	394,000	17,000	411,000
SOUTH SIERRA	0	7,000	67,000	14,000	88,000
TOTAL	0	7,000	475,000	31,000	513,000
DISCRETIONARY CLOSURE					
COAST	0	0	0	0	0
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	0	0	0
TOTAL	0	0	0	0	0
NON-DISCRETIONARY CLOSURE					
COAST	0	0	2,000	0	2,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	39,000	0	39,000
TOTAL	0	0	41,000	0	41,000

GEOTHERMAL RESOURCES

ALTERNATIVE 2 - PROTECTION

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS					
COAST	0	0	51,000	0	51,000
VALLEY	0	0	20,000	0	20,000
SOUTH SIERRA	0	84,000	156,000	19,000	259,000
TOTAL	0	84,000	227,000	19,000	330,000
MINOR CONSTRAINTS					
SOUTH SIERRA	0	0	0	0	0
TOTAL	0	0	0	0	0
MAJOR CONSTRAINTS					
COAST	0	0	14,000	0	14,000
VALLEY	0	0	288,000	14,000	302,000
SOUTH SIERRA	0	5,000	77,000	10,000	92,000
TOTAL	0	5,000	379,000	24,000	408,000
DISCRETIONARY CLOSURE					
COAST	0	0	4,000	0	4,000
VALLEY	0	0	110,000	3,000	113,000
SOUTH SIERRA	1,000	10,000	18,000	14,000	43,000
TOTAL	1,000	10,000	132,000	17,000	160,000
NON-DISCRETIONARY CLOSURE					
COAST	0	0	2,000	0	2,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	39,000	0	39,000
TOTAL	0	0	41,000	0	41,000

GEOTHERMAL RESOURCES

ALTERNATIVE 3 - ADMINISTRATIVE ADJUSTMENT

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS					
COAST	0	0	56,000	0	56,000
VALLEY	0	0	18,000	0	18,000
SOUTH SIERRA	1,000	74,000	172,000	19,000	266,000
TOTAL	1,000	74,000	246,000	19,000	340,000
MINOR CONSTRAINTS					
SOUTH SIERRA	0	17,000	0	0	17,000
TOTAL	0	17,000	0	0	17,000
MAJOR CONSTRAINTS					
COAST	0	0	13,000	0	13,000
VALLEY	0	0	399,000	17,000	416,000
SOUTH SIERRA	0	7,000	78,000	24,000	109,000
TOTAL	0	7,000	490,000	41,000	538,000
DISCRETIONARY CLOSURE					
COAST	0	0	0	0	0
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	1,000	0	0	1,000
TOTAL	0	1,000	0	0	1,000
NON-DISCRETIONARY CLOSURE					
COAST	0	0	2,000	0	2,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	39,000	0	39,000
TOTAL	0	0	41,000	0	41,000

GEOTHERMAL RESOURCES

ALTERNATIVE 4 - DEVELOPMENT

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS					
COAST	0	0	67,000	0	67,000
VALLEY	0	0	400,000	17,000	417,000
SOUTH SIERRA	1,000	93,000	209,000	29,000	332,000
TOTAL	1,000	93,000	676,000	46,000	816,000
MINOR CONSTRAINTS					
SOUTH SIERRA	0	0	0	0	0
TOTAL	0	0	0	0	0
MAJOR CONSTRAINTS					
COAST	0	0	2,000	0	2,000
VALLEY	0	0	18,000	0	18,000
SOUTH SIERRA	0	6,000	42,000	14,000	62,000
TOTAL	0	6,000	62,000	14,000	82,000
DISCRETIONARY CLOSURE					
COAST	0	0	0	0	0
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	0	0	0
TOTAL	0	0	0	0	0
NON-DISCRETIONARY CLOSURE					
COAST	0	0	2,000	0	2,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	39,000	0	39,000
TOTAL	0	0	41,000	0	41,000

GEOTHERMAL RESOURCES

ALTERNATIVE 5 - PREFERRED

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS					
COAST	0	0	52,000	0	52,000
VALLEY	0	0	18,000	0	18,000
SOUTH SIERRA	1,000	93,000	156,000	19,000	269,000
TOTAL	1,000	93,000	226,000	19,000	339,000
MINOR CONSTRAINTS					
SOUTH SIERRA	0	0	26,000	0	26,000
TOTAL	0	0	26,000	0	26,000
MAJOR CONSTRAINTS					
COAST	0	0	17,000	0	17,000
VALLEY	0	0	399,000	17,000	416,000
SOUTH SIERRA	0	2,000	68,000	24,000	94,000
TOTAL	0	2,000	484,000	41,000	527,000
DISCRETIONARY CLOSURE					
COAST	0	0	0	0	0
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	3,000	0	0	3,000
TOTAL	0	3,000	0	0	3,000
NON-DISCRETIONARY CLOSURE					
COAST	0	0	2,000	0	2,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	39,000	0	39,000
TOTAL	0	0	41,000	0	41,000

Appendix E-2 Solid Leasable Minerals: Phosphate - Sodium

ALTERNATIVE 1 - NO ACTION

	MODERATE POTENTIAL	POTENTIAL UNDEFINED	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS				
COAST	0	60,000	0	60,000
VALLEY	0	31,000	0	31,000
SOUTH SIERRA	0	0	329,000	329,000
TOTAL	0	91,000	329,000	420,000
MAJOR CONSTRAINTS				
COAST	2,000	5,000	0	7,000
VALLEY	36,000	364,000	0	400,000
SOUTH SIERRA	0	0	62,000	62,000
TOTAL	38,000	369,000	62,000	469,000
DISCRETIONARY CLOSURE				
COAST	0	0	0	0
VALLEY	3,000	0	0	3,000
SOUTH SIERRA	0	0	0	0
TOTAL	3,000	0	0	3,000
NON-DISCRETIONARY CLOSURE				
COAST	0	4,000	0	4,000
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	42,000	42,000
TOTAL	0	4,000	42,000	46,000

SOLID LEASABLE MINERALS: PHOSPHATE - SODIUM

ALTERNATIVE 2 - PROTECTION

	MODERATE POTENTIAL	POTENTIAL UNDEFINED	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS				
COAST	0	55,000	0	55,000
VALLEY	0	31,000	0	31,000
SOUTH SIERRA	0	0	239,000	239,000
TOTAL	0	86,000	239,000	325,000
MAJOR CONSTRAINTS				
COAST	2,000	5,000	0	7,000
VALLEY	27,000	291,000	0	318,000
SOUTH SIERRA	0	0	113,000	113,000
TOTAL	29,000	296,000	113,000	438,000
DISCRETIONARY CLOSURE				
COAST	0	5,000	0	5,000
VALLEY	12,000	73,000	0	85,000
SOUTH SIERRA	0	0	38,000	38,000
TOTAL	12,000	78,000	38,000	128,000
NON-DISCRETIONARY CLOSURE				
COAST	0	4,000	0	4,000
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	42,000	42,000
TOTAL	0	4,000	42,000	46,000

SOLID LEASABLE MINERALS: PHOSPHATE - SODIUM

ALTERNATIVE 3 - ADMINISTRATIVE ADJUSTMENT

	MODERATE POTENTIAL	POTENTIAL UNDEFINED	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS				
COAST	0	56,000	0	56,000
VALLEY	0	31,000	0	31,000
SOUTH SIERRA	0	0	271,000	271,000
TOTAL	0	87,000	271,000	358,000
MAJOR CONSTRAINTS				
COAST	2,000	8,000	0	10,000
VALLEY	36,000	294,000	0	330,000
SOUTH SIERRA	0	0	119,000	119,000
TOTAL	38,000	302,000	119,000	459,000
DISCRETIONARY CLOSURE				
COAST	0	1,000	0	1,000
VALLEY	3,000	70,000	0	73,000
SOUTH SIERRA	0	0	1,000	1,000
TOTAL	3,000	71,000	1,000	75,000
NON-DISCRETIONARY CLOSURE				
COAST	0	4,000	0	4,000
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	42,000	42,000
TOTAL	0	4,000	42,000	46,000

SOLID LEASABLE MINERALS: PHOSPHATE - SODIUM

ALTERNATIVE 4 - DEVELOPMENT

	MODERATE POTENTIAL	POTENTIAL UNDEFINED	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS				
COAST	2,000	65,000	0	67,000
VALLEY	35,000	395,000	0	430,000
SOUTH SIERRA	0	0	329,000	329,000
TOTAL	37,000	460,000	329,000	826,000
MAJOR CONSTRAINTS				
COAST	0	0	0	0
VALLEY	1,000	0	0	1,000
SOUTH SIERRA	0	0	62,000	62,000
TOTAL	1,000	0	62,000	63,000
DISCRETIONARY CLOSURE				
COAST	0	0	0	0
VALLEY	3,000	0	0	3,000
SOUTH SIERRA	0	0	0	0
TOTAL	3,000	0	0	3,000
NON-DISCRETIONARY CLOSURE				
COAST	0	4,000	0	4,000
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	42,000	42,000
TOTAL	0	4,000	42,000	46,000

SOLID LEASABLE MINERALS: PHOSPHATE - SODIUM

ALTERNATIVE 5 - PREFERRED

	MODERATE POTENTIAL	POTENTIAL UNDEFINED	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS				
COAST	0	57,000	0	57,000
VALLEY	0	31,000	0	31,000
SOUTH SIERRA	0	0	302,000	302,000
TOTAL	0	88,000	302,000	390,000
MAJOR CONSTRAINTS				
COAST	2,000	5,000	0	7,000
VALLEY	24,000	289,000	0	313,000
SOUTH SIERRA	0	0	86,000	86,000
TOTAL	26,000	294,000	86,000	406,000
DISCRETIONARY CLOSURE				
COAST	0	3,000	0	3,000
VALLEY	15,000	75,000	0	90,000
SOUTH SIERRA	0	0	3,000	3,000
TOTAL	15,000	78,000	3,000	96,000
NON-DISCRETIONARY CLOSURE				
COAST	0	4,000	0	4,000
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	42,000	42,000
TOTAL	0	4,000	42,000	46,000

Appendix E-3 Locatable Minerals

ALTERNATIVE 1 - NO ACTION

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	UNDEFINED POTENTIAL	TOTAL
OPEN TO LOCATION					
COAST	0	4,000	0	64,000	68,000
VALLEY	0	9,000	4,000	418,000	431,000
SOUTH SIERRA	8,000	150,000	183,000	45,000	386,000
TOTAL	8,000	163,000	187,000	527,000	885,000
DISCRETIONARY WITHDRAWAL					
COAST	0	0	0	0	0
VALLEY	0	0	0	3,000	3,000
SOUTH SIERRA	0	1,000	3,000	0	4,000
TOTAL	0	1,000	3,000	3,000	7,000
NON-DISCRETIONARY WITHDRAWAL					
COAST	0	0	0	4,000	4,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	4,000	4,000	34,000	42,000
TOTAL	0	4,000	4,000	38,000	46,000

LOCATABLE MINERALS

ALTERNATIVE 2 - PROTECTION

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	UNDEFINED POTENTIAL	TOTAL
OPEN TO LOCATION					
COAST	0	2,000	0	60,000	62,000
VALLEY	0	7,000	4,000	405,000	416,000
SOUTH SIERRA	8,000	147,000	180,000	45,000	380,000
TOTAL	8,000	156,000	184,000	510,000	858,000
DISCRETIONARY WITHDRAWAL					
COAST	0	1,000	0	4,000	5,000
VALLEY	0	2,000	0	16,000	18,000
SOUTH SIERRA	0	4,000	7,000	0	11,000
TOTAL	0	7,000	7,000	20,000	34,000
NON-DISCRETIONARY WITHDRAWAL					
COAST	0	0	0	4,000	4,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	40	4,000	4,000	34,000	42,000
TOTAL	40	4,000	4,000	38,000	46,000

LOCATABLE MINERALS

ALTERNATIVE 3 - ADMINISTRATIVE ADJUSTMENT

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	UNDEFINED POTENTIAL	TOTAL
OPEN TO LOCATION					
COAST	0	4,000	0	62,000	66,000
VALLEY	0	9,000	4,000	417,000	430,000
SOUTH SIERRA	8,000	149,000	181,000	45,000	383,000
TOTAL	**8,000**	**162,000**	**185,000**	**524,000**	**879,000**
DISCRETIONARY WITHDRAWAL					
COAST	0	0	0	2,000	2,000
VALLEY	0	0	0	3,000	3,000
SOUTH SIERRA	0	2,000	5,000	0	7,000
TOTAL	**0**	**2,000**	**5,000**	**5,000**	**12,000**
NON-DISCRETIONARY WITHDRAWAL					
COAST	0	0	0	4,000	4,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	40	4,000	4,000	34,000	42,000
TOTAL	**40**	**4,000**	**4,000**	**38,000**	**46,000**

LOCATABLE MINERALS

ALTERNATIVE 4 - DEVELOPMENT

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	UNDEFINED POTENTIAL	TOTAL
OPEN TO LOCATION					
COAST	0	4,000	0	64,000	68,000
VALLEY	0	9,000	4,000	418,000	431,000
SOUTH SIERRA	8,000	149,000	181,000	45,000	383,000
TOTAL	8,000	162,000	185,000	527,000	882,000
DISCRETIONARY WITHDRAWAL					
COAST	0	0	80	0	80
VALLEY	0	0	0	3,000	3,000
SOUTH SIERRA	0	1,000	5,000	0	6,000
TOTAL	0	1,000	5,000	3,000	9,000
NON-DISCRETIONARY WITHDRAWAL					
COAST	0	0	0	4,000	4,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	4,000	4,000	34,000	42,000
TOTAL	0	4,000	4,000	38,000	46,000

LOCATABLE MINERALS

ALTERNATIVE 5 - PREFERRED

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	UNDEFINED POTENTIAL	TOTAL
OPEN TO LOCATION					
COAST	0	4,000	0	63,000	67,000
VALLEY	0	9,000	4,000	417,000	430,000
SOUTH SIERRA	8,000	149,000	181,000	45,000	383,000
TOTAL	**8,000**	**162,000**	**185,000**	**525,000**	**880,000**
DISCRETIONARY WITHDRAWAL					
COAST	0	0	80	1,000	1,000
VALLEY	0	0	0	3,000	3,000
SOUTH SIERRA	0	2,000	5,000	0	7,000
TOTAL	**0**	**2,000**	**5,000**	**4,000**	**11,000**
NON-DISCRETIONARY WITHDRAWAL					
COAST	0	0	0	4,000	4,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	4,000	4,000	34,000	42,000
TOTAL	**0**	**4,000**	**4,000**	**38,000**	**46,000**

Appendix E-4 Mineral Materials

ALTERNATIVE 1 - NO ACTION

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	UNDEFINED POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS					
COAST	2,000	0	59,000	0	61,000
VALLEY	0	0	0	11,000	11,000
SOUTH SIERRA	0	14,000	0	352,000	366,000
TOTAL	2,000	14,000	59,000	363,000	438,000
MAJOR CONSTRAINTS					
COAST	0	0	7,000	0	7,000
VALLEY	17,000	10,000	28,000	364,000	419,000
SOUTH SIERRA	0	0	2,000	25,000	27,000
TOTAL	17,000	10,000	37,000	389,000	453,000
DISCRETIONARY CLOSURE					
COAST	0	0	0	0	0
VALLEY	0	0	0	3,000	3,000
SOUTH SIERRA	0	0	0	1,000	1,000
TOTAL	0	0	0	4,000	4,000
NON-DISCRETIONARY CLOSURE					
COAST	0	0	4,000	0	4,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	0	39,000	39,000
TOTAL	0	0	4,000	39,000	43,000

MINERAL MATERIALS

ALTERNATIVE 2 - PROTECTION

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	UNDEFINED POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS					
COAST	2,000	0	54,000	0	56,000
VALLEY	0	0	0	11,000	11,000
SOUTH SIERRA	0	12,000	0	283,000	295,000
TOTAL	2,000	12,000	54,000	294,000	362,000
MAJOR CONSTRAINTS					
COAST	0	0	6,000	0	6,000
VALLEY	17,000	9,000	28,000	359,000	413,000
SOUTH SIERRA	0	3,000	2,000	77,000	82,000
TOTAL	17,000	12,000	36,000	436,000	501,000
DISCRETIONARY CLOSURE					
COAST	0	0	6,000	0	6,000
VALLEY	0	1,000	0	8,000	9,000
SOUTH SIERRA	0	0	0	17,000	17,000
TOTAL	0	1,000	6,000	25,000	32,000
NON-DISCRETIONARY CLOSURE					
COAST	0	0	4,000	0	4,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	0	39,000	39,000
TOTAL	0	0	4,000	39,000	43,000

MINERAL MATERIALS

ALTERNATIVE 3 - ADMINISTRATIVE ADJUSTMENT

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	UNDEFINED POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS					
COAST	2,000	0	53,000	0	55,000
VALLEY	0	0	0	7,000	7,000
SOUTH SIERRA	0	12,000	0	302,000	314,000
TOTAL	2,000	12,000	53,000	309,000	376,000
MAJOR CONSTRAINTS					
COAST	0	0	10,000	0	10,000
VALLEY	17,000	10,000	28,000	366,000	421,000
SOUTH SIERRA	0	3,000	2,000	75,000	80,000
TOTAL	17,000	13,000	40,000	441,000	511,000
DISCRETIONARY CLOSURE					
COAST	0	0	3,000	0	3,000
VALLEY	0	0	0	5,000	5,000
SOUTH SIERRA	0	0	0	1,000	1,000
TOTAL	0	0	3,000	6,000	9,000
NON-DISCRETIONARY CLOSURE					
COAST	0	0	4,000	0	4,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	0	39,000	39,000
TOTAL	0	0	4,000	39,000	43,000

MINERAL MATERIALS

ALTERNATIVE 4 - DEVELOPMENT

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	UNDEFINED POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS					
COAST	2,000	0	66,000	0	68,000
VALLEY	17,000	10,000	28,000	376,000	431,000
SOUTH SIERRA	0	14,000	2,000	371,000	387,000
TOTAL	19,000	24,000	96,000	747,000	886,000
MAJOR CONSTRAINTS					
COAST	0	0	0	0	0
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	0	6,000	6,000
TOTAL	0	0	0	6,000	6,000
DISCRETIONARY CLOSURE					
COAST	0	0	0	0	0
VALLEY	0	0	0	3,000	3,000
SOUTH SIERRA	0	0	0	1,000	1,000
TOTAL	0	0	0	4,000	4,000
NON-DISCRETIONARY CLOSURE					
COAST	0	0	4,000	0	4,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	0	39,000	39,000
TOTAL	0	0	4,000	39,000	43,000

MINERAL MATERIALS

ALTERNATIVE 5 - PREFERRED

	HIGH POTENTIAL	MODERATE POTENTIAL	LOW POTENTIAL	UNDEFINED POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS					
COAST	2,000	0	56,000	0	58,000
VALLEY	0	0	0	4,000	4,000
SOUTH SIERRA	0	14,000	0	324,000	338,000
TOTAL	2,000	14,000	56,000	328,000	400,000
MAJOR CONSTRAINTS					
COAST	0	0	6,000	0	6,000
VALLEY	17,000	10,000	28,000	370,000	425,000
SOUTH SIERRA	0	0	3,000	52,000	55,000
TOTAL	17,000	10,000	37,000	422,000	486,000
DISCRETIONARY CLOSURE					
COAST	0	0	3,000	0	3,000
VALLEY	0	0	0	5,000	5,000
SOUTH SIERRA	0	0	0	1,000	1,000
TOTAL	0	0	3,000	6,000	9,000
NON-DISCRETIONARY CLOSURE					
COAST	0	0	4,000	0	4,000
VALLEY	0	0	0	0	0
SOUTH SIERRA	0	0	0	39,000	39,000
TOTAL	0	0	4,000	39,000	43,000

APPENDIX F - MITIGATION MEASURES

Introduction 608

Measures Applicable to All Authorizations 608
General 608
Air Quality 609
Construction 609
Cultural and Paleontological Resources 612
Fire Prevention 613
Hazardous Materials 614
Pesticides 615
Rehabilitation 615
Safety 618
T&E/Sensitive Species 618
Vegetation 620
Vehicles 620
Visual Resource Management 621
Waste 621
Wildlife 622

Measures Applicable to Livestock Grazing 622

Measures Applicable to Mining Activities 623

Measures Applicable to Oil & Gas APDs 624

Measures Applicable to Geophysical Exploration 627

Measures Applicable to Oil & Gas/ROWs/Sundry Notices 628
General 628
Bonding 629
Boundary Adjustments 630
Communications 630
Construction 631
Post-construction 631

Measures Applicable to Recreational Activities 631

Appendix F Mitigation Measures

Introduction

Future applications to conduct activities on public lands or mineral estate will be reviewed to ensure conformance with this RMP. Approved activities will be subject to limitations or mitigative measures that identify the specific actions necessary to comply with the plan.

This section lists a sampling of mitigative measures that may be applied toward authorized activities in the Caliente Resource Area. These measures may be used for Special Recreation Use Permits, Cooperative Agreements for range improvements, mining Plans of Operation, approved oil and gas Applications for Permit to Drill, or the reclamation of unauthorized uses, among others. The list applies to all alternatives.

These mitigations may be referred to by different names. They are called stipulations (not to be confused with oil and gas lease stipulations) when applied toward authorizations to use most resources. However, when attached to an approval document for post-lease oil and gas activities, these measures are known as Conditions of Approval (COA). COAs guide compliance with Section 6 of the Offer to Lease and Lease for Oil and Gas, Form 3100-11b, and are based upon Title 43 of the Code of Federal Regulations, Part 3160.

The authorized officer is not limited to the following list, nor is there any commitment to use this specific wording. New measures may be developed to address unforeseen impacts, as long as they comply with existing laws, policies, rights of the applicant, and this RMP. Only those COAs and stipulations that apply to the application in question will be used.

The applicant, as used in this section, refers to the lessee, permittee, holder, operator, or the claimant, as appropriate for the type of authorization.

Measures Applicable to All Authorizations

General

The applicant shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated.

The proponent shall obtain all necessary county, state, and federal permits before any surface disturbance takes place. Approval of this action is contingent upon obtaining the necessary permits.

Only those activities described herein are authorized. Any changes to your approved program must receive prior written approval of the authorized officer.

The applicant shall conduct all activities associated with the construction, operation, and termination of the project within the limits of the authorization.

If the applicant is in noncompliance with the terms and conditions of his/her authorization, he/she will be notified by BLM and instructed as to the appropriate action. If the operator fails to take appropriate action, he/she will be subject to enforcement action in accordance with 43 CFR _____.

The area of disturbance from proposed project activities must be confined to the smallest area practical given topography, adjacent facilities, land ownership patterns, locations of sensitive resources, or other limiting factors.

The applicant shall designate a representative(s) who shall have the authority to act upon and to implement instructions from the authorized officer. The applicant's representative shall be available for communication with the authorized officer within a reasonable time when construction or other surface disturbing activities are underway. The applicant will furnish the Caliente Resource Area Office with the name and telephone number of the designated

representative.

The applicant shall permit free and unrestricted public access to and upon the project site for all lawful purposes, except for those specific areas designated as restricted by the authorized officer to protect the public, wildlife, livestock, or facilities constructed within the project site. No fences may be built or roads blocked without authorization.

All existing improvements including, but not limited to, fences, gates, cattle guards, roads, trails, culverts, pipelines, bridges, public land survey monuments, and water development and control structures shall be maintained in serviceable condition. Damaged or destroyed improvements shall be replaced, restored, or appropriately compensated for.

The applicant shall construct, operate, and maintain authorized facilities, improvements, roads, and structures within the project area in strict conformity with the plan(s) of development which was (were) approved and made part of the authorization on _____. Any relocation, additional construction, or use that is not in accord with the approved plan(s) of development, shall not be initiated without the prior written approval of the authorized officer. A copy of the complete authorization, including all stipulations and approved plan(s) of development, shall be made available to the authorized officer. Noncompliance with the above will be grounds for an immediate suspension of activities. If noncompliance constitutes a threat to public health and safety or the environment, all activities must be suspended until compliance is achieved.

The applicant may use the project site as a road for routine maintenance, as determined necessary by the authorized officer in consultation with the applicant. The site may not be used as a road for other purposes, unless expressly approved by the authorized officer.

The applicant shall contact the appropriate office of the California Department of Fish & Game to determine the requirements for compliance with Sections 1601 - 1606 of the California Fish and Game Code. If the proposed action, including any restoration work, requires a Streambed Alteration Permit, the applicant shall obtain such permit prior to commencement of construction activities. Failure to comply with this requirement shall be cause for suspension or termination of this authorization.

Aircraft landing sites on public lands must be approved in writing by the Area Manager prior to use.

Air Quality

The applicant shall meet Federal, State, and local emission standards for air quality.

The applicant shall submit for the authorized officer's review a technical report addressing criteria and methodology of how the proposed facility will be located and designed to meet applicable Federal, State, and local air quality standards.

The applicant shall be responsible for dust control during the construction and use of roads and within project areas indicated by the authorized officer. Water or other approved methods of dust control will be used as specified.

Well pads, roads, and facilities will be constructed and maintained to avoid unnecessary impacts to air quality.

Construction

The applicant shall notify BLM of the day actual work is to commence.

The applicant shall contact the authorized officer at least _____ days prior to the anticipated start of construction and/or any surface disturbing activities. The authorized officer may require and schedule a preconstruction conference with the applicant prior to the applicant's commencing construction and/or surface disturbing activities on the project. The applicant and/or his

representative shall attend this conference. The applicant's contractor, or agents involved with construction and/or any surface disturbing activities associated with the project, shall also attend this conference to review the stipulations or conditions of approval, including the plan(s) of development.

The applicant shall not initiate any construction or other surface disturbing activities without the prior written authorization of the authorized officer. Such authorization shall be a written notice to proceed. Any notice to proceed shall authorize construction or use only as therein expressly stated and only for the particular location or use therein described.

The applicant shall coordinate all construction, maintenance, and termination activities with the oil and gas lessee, grazing lessee/permittee, Underground Service Alert, and holders of rights-of-way numbers _____ on the subject lands, in order to avoid conflicts with existing operations. The name, address, and phone number of these parties are available from the authorized officer.

The applicant shall survey and clearly mark the centerline and/or exterior limits of the project site as determined by the authorized officer.

The applicant shall mark the exterior boundaries of the project with a stake and/or lath at ____ foot intervals. The intervals may be varied at the time of staking at the discretion of the authorized officer. The tops of the stakes and/or laths will be painted and the laths flagged in a distinctive color determined by the applicant. The survey station numbers will be marked on the boundary stakes and/or laths at the entrance to and the exit from public land. The applicant shall maintain all boundary stakes and/or laths in place until final cleanup and restoration is completed and approved by the authorized officer. The stakes and/or laths will then be removed at the direction of the authorized officer.

Specific sites identified by the authorized officer (e.g., archaeological sites, areas with threatened or endangered species, or fragile watersheds) where construction equipment and vehicles shall not be allowed, shall be clearly marked onsite by the applicant before any construction or surface disturbing activities begin. The applicant shall be responsible for ensuring that construction personnel are well trained to recognize these markers and understand the equipment movement restrictions involved.

The applicant shall use slope stakes, culvert location and grade stakes, and other construction control stakes as deemed necessary by the authorized officer to ensure construction in accordance with the plan of development. If stakes are disturbed, they shall be replaced before proceeding with construction.

All survey monuments, witness corners, reference monuments, and bearing trees must be protected against destruction, obliteration, or damage. Any damaged or obliterated markers must be reestablished in accordance with accepted survey practices at the expense of the applicant.

No explosives may be used without prior written consent of the authorized officer.

Construction activity and vehicle travel is not authorized within any portion of _____.

Construction activity and surface disturbance will be prohibited during the period from ___ to _____ for the protection of _____. Any exceptions to this requirement must have prior written approval from the authorized officer.

No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of ___ inches deep, the soil shall be deemed too wet to adequately support construction equipment.

The area of disturbance from construction

activities must be confined to the narrowest width of disturbance practical given topography, adjacent facilities, occurrences of listed species, or other limiting factors. The area disturbed by construction activities will not exceed __ feet in width. Any vehicle parking or stockpiling of equipment and materials will be confined to existing disturbed lands or the __ foot construction zone. Boundary line edges at the __ foot construction corridor shall be flagged or otherwise clearly delineated.

No surface disturbance or construction activity will be allowed within ___ feet of _____ which shall be clearly marked as specified by the authorized officer. Any deviation from this requirement shall have the prior written approval of the authorized officer.

Waterbars: The operator will be required to construct waterbars on abandoned roads and pipeline routes. General guidelines for installation of waterbars are: less than two percent grade - 200 foot spacing, four to five percent grade - 75 foot spacing, greater than five percent grade - 50 foot spacing. Unstable soils may require a closer spacing, whereas the spacing may be greater on stable soils and rock outcroppings. The waterbars shall be constructed to drain freely to the natural ground level and to prevent siltation and clogging.

The applicant shall construct waterbars on all disturbed areas to the spacing and cross sections specified by the authorized officer. Waterbars are to be constructed to: (1) simulate the contour lines of the slope; (2) drain away from the disturbed area; and (3) begin and end in vegetation or rock whenever possible.

The applicant shall design and construct adequate water-control structures in each drainage crossing to prevent excessive erosion along the __(pipeline, cable, etc)__ and protect the __(pipeline, cable, etc)__ from the natural erosion process within the drainage.

The applicant shall construct low-water crossings in a manner that will prevent any blockage or restriction of the existing channel. Material removed shall be stockpiled for use in rehabilitation of the crossings.

The applicant shall comply with the construction practices and mitigating measures established by 33 CFR 323.4, which sets forth the parameters of the "nationwide permit" required by Section 404 of the Clean Water Act. If the proposed action exceeds the parameters of the nationwide permit, the applicant shall obtain an individual permit from the appropriate office of the Army Corps of Engineers and provide the authorized officer with a copy of same. Failure to comply with this requirement shall be cause for suspension or termination of this authorization.

Fording of streams and rivers with construction equipment and other motorized vehicles shall be permitted only with prior approval of the authorized officer. Temporary bridges, culverts, or other structures shall be used whenever stream crossings are required, unless otherwise approved by the authorized officer. Rivers, streams, and impoundments shall be promptly cleared of all pilings, debris, or other obstructions placed therein or caused by construction activities.

Activities employing wheeled or tracked vehicles shall be conducted in accordance with industry practices and in such a manner as to minimize surface damage.

Surface damage which causes soil movement and/or water pollution must be corrected to the satisfaction of the authorized officer or agency.

Drainage systems shall not be blocked. No cuts or fills shall be made near or in streams which will result in siltation or accumulation of debris. All damage to streams must be repaired to the satisfaction of the authorized officer or agency.

The applicant shall furnish and install culverts of the gauge and materials diameter(s), length(s), indicated and approved by the authorized officer. Culverts shall be free of

corrosion, dents, or other deleterious conditions. Culverts shall be placed on channel bottoms on firm, uniform beds which have been shaped to accept them and aligned to minimize erosion. Backfill shall be thoroughly compacted. No equipment shall be routed over a culvert until backfill depth is adequate to protect the culverts.

Pipelines shall be laid above ground from station ____ to station ____; no blading shall be allowed between these stations.

Roads will be crowned, sloped, waterbarred, and/or ditched to provide adequate drainage and to reduce erosion. Road grades may not exceed 15% or be placed on side slopes greater than 45% without prior approval of the authorized officer. Bare soil on cuts and fills must be covered with straw, matting, or other protective cover approved by the authorized officer and properly stabilized into the soil. Roads shall be regularly maintained. Unless otherwise authorized in writing, all roads must be reclaimed.

The authorized officer may suspend or terminate in whole or in part any notice to proceed which has been issued when, in his judgment, unforeseen conditions arise which result in the approved terms and conditions being inadequate to protect the public health and safety or to protect the environment.

All design, material, and construction, operation, maintenance, and termination practices shall be in accordance with safe and proven engineering practices and where applicable, BLM standards.

All topsoil (which will range from 4 to 12 inches in depth) in areas of surface disturbance will be stockpiled for reclamation purposes.

Suitable topsoil material removed in conjunction with clearing and stripping shall be conserved in stockpiles (within the right-of-way, at the following staked locations:___) Topsoil shall be stripped to an average depth of ____ inches. A total of ____ cubic yards of topsoil shall be stockpiled.

Earthwork areas shall be cleared of vegetation and the topsoil stockpiled for future rehabilitation. Prior to fill construction, the existing surface shall be sloped to avoid sharp banks and allow equipment operations. No fills shall be made with water saturated soils. Materials shall be placed in uniform layers not to exceed ____. Construction equipment shall be routed evenly over the entire width of the fill to obtain a thorough compaction.

Access routes should be planned for only the minimum width needed for safe operations and should follow natural contours where practicable, to minimize cut and fill. If suitable for reclamation purposes, excess material from cuts should be appropriately stockpiled. Salvage topsoil during construction, and store uphill if possible.

If new roads are to be utilized for more than one year, mulching and seeding of cut and fill slopes shall be completed immediately after disturbance to control erosion and establish vegetative cover. Seed types, fertilizer, and rates of application will be specified by the authorized officer.

Cultural and Paleontological Resources

Any cultural and/or paleontological resource discovered by the applicant, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Applicant shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The applicant will be responsible for the cost of evaluation. Any decision as to proper mitigation measures will be made by the authorized officer after consulting with the appropriate parties. The applicant will be a part of the consultation process.

Archaeological resources are fragile and irreplaceable. The potential effect of your proposed action upon archaeological resources has been assessed in accordance with Section 106 of the National Historic Preservation Act of 1966 et seq. Actions other than those explicitly approved by the Bureau of Land Management, which result in impacts upon such resources, shall be subject to the provisions of the Archaeological Resources Protection Act of 1979 and the Federal land Policy and Management Act of 1976. These statutes protect archaeological resources for the benefit of all Americans. As property of the United States, no person may, without authorization, excavate, remove, damage, or otherwise alter or deface any historic or prehistoric site, artifact, or object of antiquity located on public lands. Proponents shall immediately bring to the attention of the Area Archaeologist any archaeological resources encountered during operations and maintain the integrity of such resources pending subsequent investigation.

Emergency Discovery In The Absence of Monitoring: This stipulation applies in emergency discovery situations where monitoring for cultural resources was not being performed, because the presence of cultural resources could not have been anticipated. If, in its operations, the applicant discovers any historic or prehistoric ruin, monument, or site, or any object of antiquity subject to the Antiquities Act of 1979, and 43 CFR Part 3, then work will be suspended and the discovery promptly reported to the BLM Area Manager. The BLM will then specify what action is to be taken. The BLM will evaluate the significance of the discovery and consult with the State Historic Preservation Officer. Minor recordation, stabilization, or data recovery may be performed by the BLM. However, more significant mitigation shall be carried out by a qualified, permitted archaeologist. It is BLM's responsibility to ensure that such mitigation is carried out in accordance with 36 CFR Part 800.11. Given the timeframe involved in the BLM's budgeting process, operators are strongly encouraged to fund contract archaeologists to perform such required mitigation. Further damage to significant cultural resources and operations in its vicinity will not be allowed until any required mitigation is successfully completed.

Fire Prevention

The applicant shall prepare a fire prevention and suppression plan that shall be reviewed, modified, and approved, as appropriate, by the authorized officer. The applicant shall take into account such measures for prevention and suppression of fire on the project site and other public land used or traversed by the applicant in connection with operations of the authorization.

The applicant is responsible to ensure that each employee, subcontractor, or any other individual or company legally working on the project site is aware of the provisions of the fire plan, is familiar with the location and proper use of fire fighting equipment, and conducts themselves in a fire-safe manner.

All fires will be reported immediately to: the Bureau of Land Management Dispatcher (805) 861-4110 OR the _____ County Fire Dispatcher at 911. Be as specific as possible in describing the location, size, and behavior of the fire.

During conditions of extreme fire danger, operations shall be limited or suspended in specific areas, or additional measures may be required by the authorized officer.

The applicant shall maintain a fire watch with fire-fighting equipment during construction at the following locations, as required by the authorized officer:_____.

Vehicles must be equipped with a spark arrester that meets the U. S. Forest Service Standard 5100-1a. The spark arrester must be properly installed and maintained in an effective operating condition. For vehicles designed for, and currently legal for, operation on public highways (passenger cars, pickup trucks, Jeeps, etc.), the factory installed muffler and exhaust system (or exact replacement) are

acceptable. Diesel engines with a turbocharger powered by exhaust gas do not require a spark arrester.

When requested by the authorized officer, the applicant shall make equipment already at the site with operators, temporarily available for fighting fires in the vicinity of the project. Payment for such services will be made at rates determined by the authorized officer.

Hazardous Materials

The applicant(s) shall comply with the Toxic Substances Control Act of l976, as amended (15 U.S.C. 2601, et.seq.) with regard to any toxic substances that are used, generated by, or stored on the right-of-way or on facilities authorized under this authorization (see 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

The applicant shall submit its contingency plan to the authorized officer prior to scheduled start up. The plan shall: a. Include provisions for oil or other pollutant spill control; b. Identify the agencies responsible for contingency plans in California that shall be among the first to be notified in the event of any pipeline system failure resulting in a spill of oil or other pollutant; c. Provide for restoration of the affected resource; d. Provide that the authorized officer shall approve any materials or devices used for oil spill control and any disposal sites or techniques selected to handle oil, matter, or other pollutants; e. Include separate and specific techniques and schedules for cleanup of spills of oil or other pollutants on land or waters.

The applicant shall immediately report to the BLM dispatcher at (805) 861-4110 all spills or other incidents involving hazardous materials.

If during any phase of the construction, operation, or termination of the pipeline or related facilities, any oil or other pollutant should be discharged on Federal lands from the pipeline system, containers, or vehicles, the control and total removal, disposal, and cleanup of such oil or other pollutant shall be the responsibility of the applicant, regardless of fault. Upon failure of the applicant to control, cleanup or dispose of such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting therefrom, the authorized officer may take such measures as he deems necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the applicant. Such action by the authorized officer shall not relieve the applicant of any liability or responsibility.

Stored fuel and lubricants, in excess of 55 gallons, must be provided with a secondary means of containing all of the fluids, with sufficient freeboard for added precipitation and runoff. Impervious dikes, pits and ditches leading to sealed sumps are commonly used for this purpose. All storage facilities shall be located as far away from waterways as possible.

All toxic or hazardous materials shall be secured at all times to prevent access by wildlife or by the public.

The applicant agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et.seq, or the Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, et. seq.) on the project (unless the release or threatened release is wholly

unrelated to the applicant's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the applicant, its agent, or unrelated third parties.

Pesticides

Use of pesticides shall comply with applicable Federal and state laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the applicant shall obtain from the authorized officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the authorized officer. Emergency use of pesticides shall be approved in writing by the authorized officer prior to such use.

Rodenticide use for facility maintenance is not authorized.

Rehabilitation

____ days/weeks prior to termination of the authorization, the applicant shall contact the authorized officer to arrange a joint inspection of the project. This inspection will be held to agree to an acceptable termination (and rehabilitation) plan. This plan shall include but is not limited to: removal of facilities, drainage structures, or surface material; recontouring; replacement of topsoil; and/or seeding. The authorized officer must approve the plan in writing prior to the applicant's commencement of any termination activities.

Reclamation of all disturbed areas must be performed as soon as possible after operations permanently cease. Reclamation may be postponed during 2 years of "non-operation" (when activity in an areas stops), if future operations are scheduled to resume within 2 years. Minimal assessment work is considered "non-operation".

Backfilling, final grading, and revegetation shall be completed within two (2) years after the completion or termination of the particular operation involved unless the district manager or other appropriate officer extends the time.

All equipment, vehicles, structures, debris, and trash must be removed from the public lands, unless BLM authorization is given for certain items to remain.

All berms will be knocked down following drilling or exploration activities, or as otherwise specified by the BLM. Displaced materials shall be raked back onto the affected area and evenly distributed.

The first steps in the revegetation of a disturbed site are backfilling excavations and reduction of high walls. Coarse rocky material should be replaced first, followed by medium and fine materials being placed on top. Recontouring means shaping the disturbed area so that it will blend in with the surrounding lands and minimize the possibility of erosion.

All areas of displaced soil generated during construction activities shall be recontoured and smoothed to their preconstruction state. The authorized officer may require the applicant to use hand labor to accomplish this in some areas, otherwise mechanized equipment may be used. The applicant may be required to stockpile and backfill topsoil.

The applicant shall uniformly spread topsoil over all unoccupied disturbed areas (outside the ditch line, fence line, work area). Spreading shall not be done when the ground or topsoil is frozen or wet.

The applicant shall recontour disturbed areas, or designated sections of the project site by grading to restore the site to approximately the original contour of the ground as determined by the authorized officer.

After operations have been completed, all new roads shall be reclaimed, unless otherwise specified by the BLM. High walls and cutbanks are to be knocked down and

blended with the surrounding landscape. Remove all culverts from drainage crossings and cut back the fill to the original channel. The roadbed should be ripped to a minimum depth of 12" to reduce compaction and provide a good seedbed. The road must then be fertilized, seeded and mulched. When necessary, waterbars are to be used to block access and provide drainage.

The applicant shall restore drainages, to the greatest extent possible, to the original bank configuration, stream bottom width, and channel gradient. Loose soil, fill, and culverts shall be removed from drainage channels as directed by the authorized officer.

The applicant will rehabilitate all unused areas of surface disturbance resulting from the proposed action. Reseeding will be done during _____ through _____ to utilize winter precipitation to ensure germination. Seeding rates and methods will be specified by the authorized officer of BLM during _____. The applicant will contact the Caliente Resource Area Office at (805) 861-4236 for specific instructions on reclamation and seeding procedures.

The applicant will, where necessary, rehabilitate all previously undisturbed areas that are temporarily impacted by construction activities. Rehabilitation will include scarification, reseeding, planting of shrubs etc., as necessary. Site rehabilitation will be conducted in consultation with the Bureau, the USF&WS, and revegetation experts to ensure effective results. Reseeding shall be repeated as necessary until impacted areas have reached vegetative cover equal to approximately 70% of adjacent or nearby undisturbed similar habitats.

The applicant shall prepare a seedbed by: (a) scarifying the disturbed area, (b)distributing topsoil uniformly, or (c) disking the topsoil, as directed by the authorized officer.

Broadcast seeding is preferable on smaller sites. When using a whirlybird type seed spreader, it is important to keep the different seeds well mixed to achieve even seed distribution. For the best results, a drag harrow should be pulled over the seeded area to cover the seed before mulching. Hydroseeding can be used on critical sites for rapid cover and erosion control on cut banks, fill slopes and any other disturbed areas. When applied, hydroseeding should not exceed ¼" thick because excess weight can cause hydroseed to slide on slopes greater than 45 percent.

Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre noted below are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of the __ growing season after seeding. The authorized officer is to be notified a minimum of __ days prior to seeding of the project.

Seed Mixture

Species of Seed _____
Variety _____
Pounds/acre PLS _____
Total _____lbs/acre PLS

Pure Live Seed (PLS) formula: % of purity of seed mixture times % germination of seed mixture = portion of seed mixture that is PLS.

The applicant shall seed all disturbed areas with the seed mixture(s) listed below. The seed mixture(s) shall be planted in the amounts specified in pounds of pure live seed (PLS)/acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed shall be tested and the viability testing of seed shall be done in accordance with State law(s) and within 9 months prior to purchase. Commercial seed shall be either certified or registered seed. The seed mixture container shall be tagged in accordance with State

law(s) and available for inspection by the authorized officer.

The applicant shall seed all disturbed areas, using an agreed upon method suitable for the location. Seeding shall be repeated at applicant's expense, if a satisfactory stand is not obtained as determined by the authorizing officer upon evaluation after the first growing season.

Unused portions of the disturbed area that are no longer needed after completion of the project, will be reshaped and reseeded with _____ lbs. of common/scientific name, such as saltbush (Atriplex polycarpa) seed prior to _____ but no later than _____.

Due to the poor nutrient value of exposed soils, it is important to use a good fertilizer to insure maximum yield from the seeding mixture. The fertilizer should be spread at the rate of 500 lbs/acre and incorporated into the top 2" of soil before seeding and mulching. Fertilizer shall not be allowed to enter streams. The recommended fertilizer is 16-20-0 ammonium phosphate with sulfur.

Weed-free straw mulch should be applied at the rate of 2 tons/acre. On slopes greater than 35%, the mulch needs to be punched, netted, or blown on with a "tackifier" to hold the soil in place. Ryegrass straw should not be used because a toxic reaction with the seedlings inhibits growth.

Replacement of destroyed trees may be necessary with the planting of seedlings or container stock.

All yucca, Joshua trees, and cholla will be salvaged and transplanted to a "nursery area" during operations. They will have their north sides marked prior to transplanting, and will remain oriented in the same direction when replanted. When the project site has been recontoured, they will be transplanted in a random manner throughout the reclaimed area.

Noxious weeds which may be introduced due to soil disturbance and reclamation will be treated by methods to be approved by the Authorized Officer. These methods may include biological, mechanical, or chemical. Should chemical methods be approved, the lessee must submit a Pesticide Use Proposal to the Authorized Officer 60 days prior to the planned application date.

Areas being reclaimed may require fencing. The need will be determined on a case-by-case basis.

Reclaimed and reseeded areas which occur within a livestock allotment shall be fenced to exclude livestock for three years, unless otherwise specified.

The Operator shall provide written notification to the BLM within 15 days of completion of operations and reclamation by the operator, and shall arrange for a final compliance inspection. Within 30 days of the completion of reclamation work, the proponent will supply the Caliente Resource Area with photographs showing the process of the reclamation activity, including any water well sealing procedures. Upon cessation of mining operations, all pits and trenches shall be backfilled to existing ground level and contoured (unless otherwise stipulated).
Once work has been completed, final inspections of the reclamation and revegetation effort will be made by the BLM. These inspections will be accomplished as follows, before final approval of the reclamation and reseeding effort is complete:

A. First inspection will occur within 30 days after recontouring, reseeding, and other earth work is completed at the termination of the operation.

B. Second inspection will be conducted one year after reseeding to check the results of revegetation.

Approximately one year form the date of construction completion, the Bureau will

conduct a field evaluation of disturbed areas. After such evaluation, the Bureau may require the applicant to rehabilitate and reseed with (common/scientific name, such as saltbush (Atriplex polycarpa)) that portion of the disturbed area.

Safety

Applicant shall maintain the project site in a safe condition, as directed by the authorized officer.

All fatalities, as well as any injuries requiring immediate hospitalization, shall be reported to the BLM within 48 hours. The applicant shall inform the authorized officer within 48 hours of any accidents on public lands that require reporting to the Department of Transportation as required by 49 CFR Part 195.

The applicant shall provide for the safety of the public entering the project site. This includes, but is not limited to, barricades for open trenches, flagpersons with communication systems for single-lane roads without turn outs, and attended gates for blasting operations.

The project area premises shall be appropriately posted and fenced or otherwise protected to minimize injury to persons, livestock, and wildlife.

Construction holes left open over night shall be covered. Covers shall be secured in place and shall be strong enough to prevent livestock or wildlife from falling through and into a hole.

T&E and Sensitive Species

Prior to any construction activities, the applicant will notify all construction employees of the occurrence of federally listed species in the project area, penalties for "take" of listed species, and of all specific stipulations in this grant for the conservation and protection of these species.

The applicant shall develop and implement an education program for all onsite project personnel prior to the onset of ground disturbing activities. This program shall address the occurrence of endangered species in the project area, their identification, applicable protection of listed species under the Endangered Species Act, measures that must be implemented or observed as part of this project to protect endangered species, and procedures to follow should a listed species be encountered during project construction or operation.

Prior to commencement of each phase of project activities, the Bureau shall be provided, in writing, with the names of those in attendance at the employee education session and the date of the session.

The applicant shall arrange to have a wildlife biologist/botanist available to assist the construction workers in the identification and avoidance of endangered species activity areas.

The applicant shall designate a representative who will be responsible for ensuring compliance with the following endangered species protective measures. The applicant shall furnish the Bureau with the name and telephone number of the designated representative.

The _____ is listed as an endangered species by the US Fish and Wildlife Service. The taking of _____ (or in other words killing, harming, or harassing them), whether intentional or accidental, is a violation of the Endangered Species Act, and may result in a substantial penalty.

Within 60 days prior to commencement of construction, a qualified biologist shall re-survey those portions of the project area that are known or potential threatened or endangered species habitat. The re-survey will include an area _____ feet on all sides of the outside edge of the construction area. During these surveys, the status of previous survey results shall be reviewed and updated; _(species)_ and _(species)_ burrows shall be

flagged for avoidance, where necessary; and additional habitat or endangered species features, if any, shall be identified, flagged, and mapped.

The project site, and any ancillary or interrelated project areas (roads, pipeline corridors, project service areas, etc.) shall be surveyed prior to onset of construction activities for _____ and signed by a qualified biologist using methodologies acceptable to the BLM, USF&WS, and California Department of Fish and Game. The qualified biologist shall prepare a report that includes: methodologies employed and date(s) of survey; survey results; a discussion of anticipated direct and indirect project effects to the sensitive species during initial construction and subsequent operation and maintenance; and recommendations to prevent, reduce and/or offset these anticipated indirect effects. The report shall be provided to the Bureau for review and comment at least 30 days prior to onset of construction activities. Pending review, the Bureau may require implementation of recommended mitigation actions by the qualified biologist and may impose additional actions for the protection of the _____ as conditions to the project.

Any sensitive plant populations encountered during surveys shall be prominently marked and avoided. A biologist familiar with these species shall also be present on-site during construction to aid in plant identification and avoidance.

Known or potential _____ dens or _____ burrows shall not be damaged or destroyed by project related activities without prior approval from the USF&WS. After approval has been obtained from the USF&WS, the procedures specified on page _____, section _____ of the __(date)__ Biological Opinion shall be implemented.

To the extent possible, construction operations should occur when air temperatures are between 25 and 35 degrees Celsius (77-95 degrees Fahrenheit) to maximize the opportunity for blunt-nosed leopard lizards to avoid slow moving construction equipment while minimizing the potential for entrapment or crushing of lizards that may remain inactive in underground burrows.

To prevent harassment or mortality to listed species and damage to their dens or burrows, presence of pets on project construction sites shall not be allowed.

In accordance with the __(date)__ Biological Opinion, incidental take is authorized at: __(species)__ (#), and __(species)__ (#) for harm or mortality, and __(species)__ (#), and __(species)__ (#) for harassment. In the event of a spill or other emergency situation, the aforementioned incidental take limits will apply.

In the event of a spill of hazardous materials within endangered species habitat, the following steps will be taken: The applicant will immediately notify the U.S. Fish and Wildlife Service (916-___-___) of the incident, the location and extent, and measures underway for cleanup and repair. Immediate containment, using constructed earthen berms or other means to contain the damage to the smallest possible area. Biologists familiar with the species will be used to flag San Joaquin kit fox dens or other sensitive areas for avoidance by cleanup equipment, and to inventory the impacted area for entrapped or injured wildlife. Removal of contaminants and contaminated soils for safe off-site disposal in an expeditious fashion.

If the limit of incidental take of any species is exceeded, the causative action will cease and consultation will be reinitiated within five working days of the most recent mortality.

The U.S. Fish & Wildlife Service is to be notified in writing within 3 working days of the accidental death or injury of a _____ or _____, or the finding of any dead or injured _____ or _____ during construction, operation, or maintenance of the project. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal, and any other pertinent

information. The U.S. Fish & Wildlife Service contacts for this information are _____ or _____ at _____. Any dead or injured _____ or _____ must be turned over to the California Department of Fish and Game for care or analysis. The Department contact is ____ at _____.

In the event that any of the endangered species stipulations are not complied with, the Bureau may reinitiate/initiate formal consultation with the U.S. Fish and Wildlife Service. The applicant may be required to cease all surface disturbing project work until the formal consultation has been concluded.

The applicant has agreed, as a component of this project, to acquire and convey _____ acres of endangered species habitat to a third party acceptable to the USF&WS and the BLM. The actual parcels of land acquired and conveyed are subject to approval by the USF&WS and the BLM.

The applicant has agreed, as a component of this project, to the transfer of $____ to a third party acceptable to the USF&WS and the BLM. These funds must be used to acquire and manage ____ acres of endangered species habitat. The actual parcels of land acquired and conveyed are subject to approval by the USF&WS and the BLM.

The applicant will rehabilitate an additional ___ acres of previously disturbed habitat in the general project area to compensate for temporary and/or permanent project effects to endangered species habitat. The area to be rehabilitated will be specified by the authorized officer. The applicant may be required to take appropriate measures, including installation of signs and fences to protect rehabilitated areas.

Caution signs advising of the presence of threatened or endangered species shall be installed to reduce chances of vehicular mortality. Speed limit signs shall also be posted as required to reduce speed limits on secondary access routes to 25 miles per hour.

At yearly intervals during the project, the project proponent shall submit a typed compliance report to the Bureau Area Office responsible for authorizing or reviewing project actions. This report shall: specify actions undertaken for mitigating project effects to federally listed species, problems (if any) with implementing these actions, costs incurred for mitigation, and results of mitigation as determined from field review.

Vegetation

No destruction or clearing of vegetation shall occur without prior written approval from the authorized officer.

Clearance of vegetation shall be limited to __ __ feet on each side of the project centerline.

The applicant shall not clear trees without the prior written approval of the authorized officer.

The approval of this plan does not authorize the cutting of firewood from public lands.

A botanical survey is required prior to any disturbance.

For large scale projects, the BLM shall approve the firm or individuals selected to perform the botanical survey. The basic criterion is that the firm or individual be accredited at a "local" university or college. A copy of the data collected shall be supplied to the BLM (Caliente RA) upon completion of the survey.

Vehicles

Construction-related traffic shall be restricted to routes approved by the authorized officer. New access roads or cross-country vehicle travel will not be permitted unless prior written approval is given by the authorized officer. Authorized roads used by the applicant shall be rehabilitated or maintained when construction activities are complete, as approved by the authorized officer. Vehicle speed limits off existing roads will not exceed __ miles per hour.

Vehicles may not travel off designated routes of travel or approved routes when the soil is too wet to adequately support vehicles.

Only one road or access route will be permitted to each site requiring access.

The applicant may be required to contribute toward the upkeep of access roads, if it is determined by the authorized officer that the applicant's use will have a measurable effect upon those roads.

Vehicle speed limits shall not exceed ____ miles per hour during construction, operation and maintenance, except on State and County highways and roads.

The applicant may be required to take appropriate measures, including placement of gates or fences at road junctures and posting of signs restricting access, to prevent unauthorized vehicle use.

All unneeded roads and vehicle paths will be rehabilitated. Existing road networks will be evaluated for purpose and need, and new access needs will be designed to minimize surface disturbance. Maintenance responsibility will be completed by primary users.

Existing roads and trails on public lands that are blocked as the result of the construction project shall be rerouted or rebuilt as directed by the authorized officer.

If "cross country" access is necessary, clearing vegetation or grading a roadbed will be avoided. All construction and vehicular traffic shall be confined to the right-of-way or designated access routes, roads, or trails unless otherwise authorized in writing by the authorized officer. All temporary roads used for construction shall be rehabilitated after construction is completed.

Cross-country use of vehicles and equipment is restricted to that authorized for initial construction and ongoing habitat restoration efforts, as well as to that required to address emergency situations.

No cross country use of vehicles may occur when the soil is too wet to support them. If vehicles create ruts in excess of ___ inches deep, the soils hall be considered too wet.

Visual Resource Management

All permanent above-ground structures not subject to safety requirements shall be painted by the applicant to blend with the natural color of the landscape. The color of paint used must be approved by the authorized officer. Permanent is defined as in place for more than 90 days.

The applicant shall coordinate with the authorized officer on the design and color of the poles and transmission lines to achieve the minimum practicable visual impacts.

The applicant shall use non-reflecting lines and conductors at the following locations: _____.

Waste

Trash and waste vegetation may not be burned unless so authorized in writing.

Project sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. Waste receptacles must be covered at all times. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

All food related trash such as wrappers, cans, bottles and food scraps shall be collected daily and disposed of in closed containers or regularly removed from project sites. Food related trash shall not be allowed to accumulate on any project site.

Self-contained or chemical toilets are to be used whenever possible and their contents disposed of at approved dump stations. An

exception to this is under primitive conditions for 3 days or less, human waste and toilet paper may be buried in "cat holes" six inches deep and at least 150 horizontal feet from any water source. Permanent facilities, if needed, must have county and BLM approval. Outhouses and uncontained pit toilets are not allowed.

Trash, garbage and used oil must be regularly removed from public land and disposed of properly. Do not bury any trash, garbage, or hazardous wastes on public lands. Excessive accumulations of trash, debris, or inoperable equipment on public lands will not be tolerated.

Wildlife

Wildlife escape routes or ramps shall be provided for each trench segment. The open trench shall be inspected regularly by the applicant and any animals entrapped safely removed. A final inspection of each open trench for entrapped wildlife shall also be made prior to backfilling with excavated soils.

Any given segment of pipeline trench will not be left open for longer than one week. The open trench will be inspected regularly by the applicant, and any animals entrapped safely removed. A final inspection of each open trench for entrapped wildlife must also be made prior to backfilling.

All pipe ends, culverts, or similar structures with a diameter of three (3) inches or greater will be covered. Such structures will be thoroughly inspected for entrapped animals before being buried, capped or moved. Any animals found inside will be allowed to escape before the pipe or culvert is moved or used.

All construction activities will be confined to daylight hours.

Unless otherwise agreed to by the authorized officer in writing, powerlines shall be constructed in accordance with standards outlined in "Suggested Practices for Raptor Protection on Powerlines," Raptor Research Foundation, Inc., 1981. The applicant shall assume the burden and expense of proving that pole designs not shown in the above publication are "eagle safe." Such proof shall be provided by a raptor expert approved by the authorized officer. The BLM reserves the right to require modifications or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the applicant without liability or expense to the United States.

Measures Applicable to Livestock Grazing

Rocks will be stacked both inside and outside the trough at one spot in order to allow small animals access to the water. Rocks may be cemented into place.

Bird ramps will be installed at all troughs.

At least one side of the trough will not be over 18" above ground.

The tank and trough will be painted drab colors with paint provided by the BLM.

All tanks and troughs will be equipped with functional float valves; the floats will be protected from cattle to prevent breakage.

Water may not flow over the top of the trough onto the ground. In the event that a float valve is not used, overflow must be piped through a buried pipe to a location identified by the BLM. The end of this pipe will be fenced off as indicated by the BLM according to Bureau standards.

All pipe must be buried at least 16" deep.

All fences will be built to BLM specifications. It will be the proponent's responsibility to obtain the specifications from the BLM if they are not attached.

All materials used to repair corrals must have BLM approval.

Any stray or abandoned materials (troughs, tanks, unburied pipe, wire, etc.) must be removed from the site.

The lessee must notify the BLM of the anticipated construction date at least five working days in advance.

All work on this project must be completed within ___ days.

The lessee must notify the BLM that construction is complete within five working days following completion.

Project maintenance is the responsibility of the lessee as indicated in the Range Improvement Permit or Section 4 of the Cooperative Agreement. Reconstruction requires prior Bureau approval.

Measures Applicable to Mining Activities

It is the operator's responsibility to contact and obtain necessary permits from the State of California and _____ County. The BLM may require copies of permits to be submitted when a Notice or Plan of Operations is filed.

Due to the history of small wildlife deaths, plastic pipe greater than 2 inches in diameter shall not be used for claim staking. Existing plastic pipe monuments must have all openings permanently closed. Upon loss or abandonment of the claim, all plastic pipe must be removed.

Exploratory drill sites shall be located next to or on existing roads when possible. Do not block public access. When drill sites have to be bladed, the size of the disturbance shall be as small as needed.

All drill holes will be sealed by plugging the top three feet with cement (or concrete) or the entire hole filled with sand, gravel, or drillings, upon abandonment of the hole.

Drill cuttings shall be placed back down the drill hole, removed from the area, and/or evenly raked back onto the affected area.

All surface structures added or modified on public land as a part of this activity shall be removed after operations are terminated or shut down for more than two years (one year under 3802 regulations).

Any needed structures should be temporary in nature when possible. Occupancy or camping on public land, in excess of 14 days per calendar year, must be reasonably incident to and required for mining operations and will require either a Notice or Plan of Operations.

All open shafts shall be securely sealed upon cessation of mining operation or whenever operations are shut down for an extended period of time (six months or more). The Bureau shall inspect such closed sites to verify compliance with this measure prior to completion of project rehabilitation by the project proponent.

Recontour all piles, berms, and disturbed areas to blend with the surrounding terrain upon completion of mining activities.

For all pits and trenches not backfilled, at least one side (or end) shall be sloped to a three to one slope to the first bench. All benches shall be a least ten feet wide.

All embankments, cuts, etc. shall be sloped to a three to one slope to the first bench.

All bladed vegetation and excavated materials must be stored in such a manner that they do not obstruct the natural flow of water down wash systems.

All surface openings (shafts, adits, and open stopes) shall be closed to prevent human access or entrapment of wildlife. For underground mining operations, mine shaft collars cribbing, underground ladders, shoring, and mine ventilation openings shall remain in place.

Vehicle and equipment use is limited to the number necessary to undertake the authorized exploration or development action and/or as specified in the final decision.

Ore and/or tailings shall be stockpiled in previously disturbed areas.

In order to reduce conflicts with _____, all activities associated with the proposed activity will be restricted to the months of _____ through _____.

Except where specifically authorized by the BLM, conduct mining operations, vehicle use, and other related activities away from surface water, such as springs and streams, maintaining a minimum distance of 200 yards.

Any water associated with mining operations which is exposed to livestock or wildlife must meet Federal, State, and County water quality standards.

Leach pads (or vats) must be fenced (barbed wire is adequate) to keep larger animals and livestock out. Fences will be built to BLM specifications which are available to the proponent at his/her request.

A small mesh (1/2 inch maximum) fence (two feet high is adequate) must enclose leach pads (or vats) to exclude smaller wildlife.

A net must be stretched over the top of leach pads (or vats) to prevent birds from landing within the leach pad area.

All operators shall comply with applicable Federal and State water quality standards, including the Federal Pollution Control Act, as amended (30 U.S.C. 1151 et seq.).

1. Should any aquifer or underground source of water be encountered during drilling operations the proponent shall complete and submit to this office the following questionnaire:

   a. LOCATION OF DRILL SITE: (Complete legal description)

   T. _____, R. _____, SEC. _____.

   b. DEPTH TO WATER SOURCE: _____ft.

   c. DESCRIPTION: Core sample at depth of water source.

   d. Brief description as to amount of water present:

   _____ slight amount
   _____ usable source
   _____ potential aquifer
   _____ other (Describe)

2. To prevent any degradation of water quality as a result of this operation, the proponent shall follow all State and Federal guidelines pertinent to the sealing of the well to prevent mixing of water layers and introduction of possible contaminants.

An impervious sheet or other catchment device shall be used under all exploration equipment in order to protect against potential soil contamination.

The proponent will file a monthly report with the BLM Caliente Resource Area chronicling all dead animals found in the vicinity of the mine. Numbers, location, and where possible species, shall be reported.

All animals that may have died as a result of cyanide ingestion will be frozen and saved for collection by the BLM.

Measures Applicable to Oil & Gas - APDs

General

Directional surveys (inclination and azimuth) shall be run on non-directional wells where the inclination exceeds 3°. These must be run at intervals as needed, for locating the hole in case of a blowout, and at least every 500'.

Inclination on non-directional wells shall not exceed 10° (43 CFR 3162.5(b) without permission of the BLM. The angle change shall not exceed 1.5° per 100' and surveys must be taken at intervals of 500' or less.

All oil, gas or fresh water sands behind the surface pipe and other casing shall be protected by either lifting cement or multiple-stage cementing.

Sufficient quantities of drilling mud materials, to ensure well control, shall be maintained on location at all times while drilling operations are conducted.

The applicant shall provide the BLM with analyses of any formation water recovered in drilling or testing. These analyses must be identified by lease number, well number, section, township and range, depth of sample and method of obtaining sample. At a minimum these analyses must include total dissolved solids, chloride, sulfate, boron, pH, and also the electrical conductivity.

Surface casing must be installed for at least 10% of the total depth of the well, with a minimum of 200 feet, or the full depth of any usable water aquifer.

To comply with the Onshore Oil and Gas Order No. 1, this office must be notified should the well be successfully completed for production. Such notification must be received in this office no later than the fifth business day following the date on which the well is placed on production. This notification may be given orally if promptly confirmed in writing. As a minimum, the applicant must provide the following information:

a. Applicant name, address, and telephone number.
b. Federal or Indian lease prefix and number.
c. Unit or Communitization Agreement name (as appropriate).
d. Applicant well name and number.
e. API Well Number.
f. Well location (Qtr Qtr, Section, Township, Range and Meridian).
g. Date well was completed.
h. Date well was placed in a producing status.
i. Nature of the well's production (i.e. Crude Oil, Natural Gas, et al).

A single copy of all information obtained from this well including a well history on Form 3160-4, shall be submitted to the BLM within thirty (30) days of completion of this well. Field prints of logs shall be submitted promptly after running. Mud log data shall be submitted weekly. The BLM shall be notified in sufficient time so that their representative may witness all formation tests. The initial production (IP) will be mailed to this office as soon as it is determined.

The date on which production is commenced or resumed will be construed for oil wells as the date on which liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated, or the date on which liquid hydrocarbons are first produced into a permanent storage facility, whichever first occurs; and, for gas wells as the date on which associated liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated, or the date on which gas is first measured through permanent metering facilities, whichever first occurs. If you fail to comply with this requirement in the manner and time allowed, you shall be liable for a civil penalty of up to $10,000 per violation for each day such violation continues, not to exceed a maximum of 20 days. See Section 109(c)(3) of the Federal Oil and Gas Royalty Management Act of 1982 and the implementing regulations at Title 43 CFR 3163.2-(e). Note: Gas produced from this well may not be vented or flared beyond an initial, authorized test period of thirty (30) days or 50 MMCF following its (completion or re-completion, whichever first occurs), without the prior, written approval of the authorized officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue venting or flaring is granted, and you shall be required to

compensate the lessor for that portion of the gas vented without approval which is determined to have been avoidably lost.

Section 102(b)(3) of the Federal Oil and Gas Royalty Management Act of 1982, as implemented by the applicable provisions of the operating regulations at Title 43 CFR 3162.4-1(c), requires that "not later than the 5th business day after any well begins production on which royalty is due anywhere on the lease site or allocated lease site, or resumes production in the case of a well which has been off production for more than 90 days, the applicant shall notify the authorized officer by letter or sundry notice, Form 3160-5, or orally to be followed by a letter or sundry notice, of the date on which such production has begun or resumed".

Drilling wells shall be marked in a conspicuous place with the name of the applicant, the lease serial number, and the number and location of the well. This marker is to be maintained at all times during well operations.

Copies of the approved Application for a Permit to Drill, Form 3160-3, this set of conditions, and minimum BOPE requirements shall be posted at the well site during operations.

Approved Blow Out Prevention Equipment (BOPE) must be installed and maintained in good working condition at all times. The BOPE must be pressure tested each time it is installed. BOPE must be functionally operated each trip, and all BOPE must be pressure tested monthly. The BLM must be given sufficient notice (a minimum of 24 hours) so that all BOPE pressure tests can be witnessed by a BLM representative. Blowout prevention drills shall be held at least every week and the drills must be posted in the log book. For development (field) wells, this equipment may be modified/waived with approval of BLM.

Drilling equipment shall not be removed from any suspended drilling well without first securing prior approval of the BLM.

A report of operations for this well must be filed for each calendar month beginning with the month in which drilling operations are initiated. This report is due on or before the fifteenth day of the second month following the month being reported. (Example: the July report is due on or before the 15th of September). This report is filed on Form MMS-3160, Monthly Report of Operations, and is to be submitted to:

Minerals Management Service
Production Accounting Division
P. O. Box 17110
Denver, Colorado 80217
For information call, 1-800-548-3094.

This well shall not be abandoned without prior approval of the BLM. Before approval can be granted, the BLM must have sufficient time to examine logs and other data. The BLM or the State Division of Oil and Gas representative will witness the abandonment where a memorandum of understanding, MOU, authorizes the substitution of a state inspector for a federal inspector.

The well shall be cleaned out to total depth (TD), so that the well can be plugged with cement from that depth. If unable to clean out to TD, notify the BLM in detail of the effort made, and get BLM approval for a revised plugging program.

The "rat hole" and the "mouse hole" shall both be filled with cement from bottom to top as soon as possible after use.

Sumps may require lining with non-porous materials to prevent leakage.

Drilling muds and or additives may require trucking offsite to designated disposal area.

Drill holes shall be permanently sealed or filled as directed by the authorized officer and/or agency upon completion of operations.

Excavations used for the permanent impoundment of water shall be graded to establish safe access to water for persons, livestock, and wildlife. Continued testing and

maintenance of water quality may be required.

Any water encountered while drilling will be reported to the BLM. The well will be treated as a water well according to California water laws, and proper aquifer protection shall be required. This shall include sealing off any aquifer zone with cement 50 feet above and below such aquifer zone(s), and the well shall be capped and field location (Township, Range, and Section) provided to the BLM.

Any water well drilled to provide water for drilling purposes will be analyzed and offered to the BLM for use following the completion of the drilling phase. Water rights will be filed on behalf of BLM.

The BLM will be notified of any strong water aquifers encountered during drilling which could be developed for water prior to final plugging of the dry hole. Water rights will be held by the BLM.

Upon well abandonment, the Bureau may require perforation and plugging of any well passing through an aquifer, in such a way so as to allow use of the well for water. Title to the well and any water will be given to the BLM.

Measures Applicable to Geophysical Exploration

A copy of all Conditions of Approval (COAs), along with a copy of the submitted Notice of Intent (NOI), shall be kept in the field by each seismic crew, for inspection by BLM personnel.

Any exploration greater than ¼ mile from the proposed seismograph line route filed with the NOI will require prior approval from the Authorized Officer.

All affected livestock operators shall be notified prior to starting seismic operations. This notice shall contain information as to the expected timing, location, and type of exploration conducted.

A Class III cultural resource inventory is required on those portions of a seismic line crossing BLM surface and any staging areas proposed on BLM surface. The BLM will inform the operator when the BLM will be able to complete the inventory. If the time frame provided proves unacceptable to the operator, the operator has the option of contracting for the necessary report.

A 100 percent cultural resources inventory (Class III) of the areas where "surface disturbance will likely occur" including seismic line(s), staging areas(s), turnarounds, drive-arounds, bulldozer cuts, and access roads must be completed prior to any surface disturbance. A written "Report of Examination for Cultural Resources" will be submitted to and approved by the Area Manager. An inventory of all areas designated by the Area Manager will be completed and approved by the BLM prior to field operations. Contract archaeologists must hold a valid BLM permit for the area(s) to be inventoried.

The seismic operator will not remove, injure, deface, or alter any object of scenic, archaeological, historical, or scientific interest. All employees of the operator and any subcontractors must be informed by the operator before commencement of operations that any disturbance to, defacement of, or removal of archaeological or historical material (including but not limited to stone, bone, ceramic, or wood artifacts; i.e., pot sherds, arrowheads, etc.), will be treated as law enforcement issues and/or administrative issues under current regulations on public lands. Operators will be held accountable for the conduct of their employees and subcontractors in this regard.

Any cultural resources discovered during geophysical operations which were missed by the archaeological survey or which are unearthed during operations shall be avoided. The BLM Area Manager shall immediately be notified if any new sites are encountered. The operator shall take any additional measures requested by the Area Manager. These may require the hiring, at the operator's expense, of a qualified Archaeologist to carry out specific

instructions in the BLM.

Seismic activities shall maintain a minimum buffer distance of 100 feet between all ____ burrows and planned sites of ground vibration or subterranean explosion.

No fence will be cut unless no other alternative exists. Before cutting through any fences, the operator shall firmly brace the fence on both sides of the cut; a temporary gate will be installed for use during the course of operations unless the fence is immediately repaired. Upon completion of operations, fences shall be restored to at least their original condition.

All debris, such as paper, cans, wire, flagging, or other trash, shall be removed and properly disposed of upon completion. No oil or lubricants shall be drained onto the ground.

All vehicles (including drills) will be limited to existing roads, except in approved areas. Improvement of existing roads and trails is not permitted, unless prior approval is obtained.

Water for drilling purposes will not be obtained from federally owned or controlled water sources such as reservoirs, wells, and springs unless specific permission is obtained from the Authorized Officer.

Powder magazine sites on public lands must be approved in writing by the Area Manager prior to use. No live explosive charges shall be left unattended or uncovered in such a manner as to cause a safety hazard. Powder magazines will be located at least one-quarter mile from traveled roads. Loaded shot holes will not be left unattended. The area around the powder magazine will be kept clean of trash.

Access to federal lands across non-federal lands is not guaranteed by the government. Permission to enter or cross private, or state-owned lands must be obtained from the landowner(s).

Immediately upon completion of operations, a Notice of Completion of Oil & Gas Exploration Operations and updated BLM planimetric map or USGS topographic map showing revisions to the original NOI shall be submitted to the Authorized Officer. The map will be used to perform a final compliance inspection of the exploration area.

Measures Applicable to Oil & Gas / Rights of Way - Sundry Notices

General

The applicant shall submit a plan or plans of development that describe in detail the construction, operation, maintenance, and termination of the right-of-way and its associated improvements and/or facilities. The degree and scope of these plans will vary depending upon (1) the complexity of the right-of-way or its associated improvements and/or facilities, (2) the anticipated conflicts that require mitigation, and (3) additional technical information required by the authorized officer. The plans will be reviewed and, if appropriate, modified and approved by the authorized officer. An approved plan of development shall be made a part of the right-of-way grant.

For the purpose of determining joint maintenance responsibilities, the applicant shall make road use plans known to all other authorized users of the road. Applicant shall provide the authorized officer, within 30 days from date of grant, with the names and addresses of all parties notified, dates of notification, and method of notification. Failure of applicant to share proportionate maintenance costs on the common use access road in dollars, equipment, materials, or manpower with other authorized users may be adequate grounds to terminate the right-of-way grant. The determination as to whether this has occurred and the decision to terminate shall rest with the authorized officer. Upon request, the authorized officer shall be provided with copies of any maintenance.

Linear-type facilities such as roads, power lines, and pipelines shall cohabit and follow a

common route unless otherwise approved by the Authorized Officer. Surface disturbance will be minimized.

The operator will give the dirt contractor a copy of the Surface Use Plan and any additional BLM COAs before any work begins. A copy of the approved Surface Use Plan will be available on-site for inspection during construction.

Final written certification is required that there are no hazardous chemicals on the RECRA list left in the drilling fluids within the mud pit. If the operator cannot provide certification, the drilling fluids and pit liner must be disposed at a federally approved hazardous materials site.

A leak detection system will be installed to monitor lined reserve pits. This system must be installed in order to detect liner leakage. The leak detection plan must be submitted to and approved by the Authorized Officer during APD approval. This plan must include the system design including line installation, monitoring plan, and the individual responsible for the required monitoring.

Routes of pipeline and all areas to be disturbed or impacted are to be flagged within two weeks following submission of the project to this office.

Large (> 2" diameter) pipelines passing through _____ habitat above-ground shall be elevated 8-10 inches above ground level to allow for the unimpeded movement of _____ across the pipeline right-of-way.

Water flushed from pipelines during hydrostatic testing should be dissipated to prevent excessive erosion and to reduce the potential for inadvertent flooding of _____ burrows.

Where feasible, pipeline trenches should be constructed in roadway alignments to reduce habitat loss and minimize potential for destruction of _____ burrows.

The pipeline will be buried within the road in order to minimize surface disturbance.

All access roads and areas impacted by vehicles and/or heavy equipment on a repeated basis shall be ripped to a depth of at least six inches (where possible).

Any earthen berms used to cover the pipeline shall be regraded, contoured or rounded off, ripped, and reseeded with an approved seed mix.

Compaction and construction of the berms surrounding tank batteries will be constructed prior to storage of fluids and designed to prevent lateral movement of fluids through the utilized materials. The berms must be constructed to contain at a minimum 120 percent of the storage capacity of the largest tank within the berm. All loading lines will be placed inside the berm.

Any release of production water on or across the land will need prior approval by the BLM.

Crossing of pipelines owned by other companies shall be accomplished in accordance with an agreement secured with that company.

Bonding

The applicant shall provide a bond in the amount of $_____, to be maintained until restoration of disturbed areas and other requirements relative to the construction phase of the project have been accepted by the authorized officer. Upon completion, or partial completion of these construction related requirements, the authorized officer may terminate or reduce the amount of the bond.

A bond, acceptable to the authorized officer, shall be furnished by the applicant by _____, or at such earlier date as may be specified by the authorized officer. The amount of this bond shall be determined by the authorized officer. This bond must be maintained in effect until removal of improvements and restoration of the right-of-way have been accepted by the authorized officer.

The applicant agrees that all monies deposited with the authorized officer as security for applicant's performance of the terms and conditions of this authorization may, upon failure on the applicant's part to fulfill any of the requirements herein set forth or made a part hereof, be retained by the United States to be applied as far as may be needed to the satisfaction of the applicant's obligations assumed hereunder, without prejudice whatever to any other rights and remedies of the United States.

Boundary Adjustments

Boundary adjustments in (lease #) shall automatically amend this right-of-way to include that portion of the facility no longer contained within the above described _____ ____. In the event of an automatic amendment to this right-of-way grant, the prior on-lease/unit conditions of approval of this facility will not be affected even though they would now apply to facilities outside of the lease/unit as a result of a boundary adjustment. Rental fees, if appropriate, shall be recalculated based on the conditions of this grant and the regulations in effect at the time of an automatic amendment.

If at any time the facilities located on public lands authorized by the terms of the lease are no longer included in the lease (due to a contraction in the unit or other lease or unit boundary change), the BLM will process a change in authorization to the appropriate statute. The authorization will be subject to appropriate rental or other financial obligation determined by the authorized officer.

Communications

No less than 45 days prior to occupancy of the applicant's facility, the applicant shall notify existing users within a 1-mile radius that it intends to accommodate a new communication user in its facility. Existing users can then file any comments pertaining to potential frequency or electromagnetic problems with the Federal Communication Commission, 1919 M Street, N.W., Washington, D.C., 20554, with a copy to the authorized officer.

The right-of-way herein granted is conditioned upon the submission of an approved license and/or renewal license granted by the Federal Communications Commission. If a copy of the FCC license was not submitted with the application, it shall be submitted within 90 days of issuance of the grant, or the grant will be terminated. The BLM may grant an extension of up to the 90 days, if requested in writing by the applicant.

This right-of-way shall terminate 60 days after expiration or cancellation of the FCC license or Interior Department Radio Advisory Committee (IRAC) radio frequency assignment, unless renewal is obtained within this period and a copy of such renewal is furnished to the authorized officer.

Copies of the amended FCC construction permit or license or IRAC frequency assignment, together with corrected block diagrams, must be filed with the authorized officer before modification of previously authorized facilities will be approved.

The applicant shall at all times operate its radio-electronic equipment in such a manner as not to cause interference with radio-electronic operations of existing users in the vicinity. If such interference results from applicant's operations, applicant will promptly, at its own expense, modify its equipment and operations, or shut down if necessary to eliminate or reduce the interference to the satisfaction of the FCC and/or the Bureau.

The applicant shall notify the authorized officer of any intent to locate additional users, within or upon their existing facilities, not less than 45 days prior to occupancy of applicant's facilities. Information that must be included is: a. Name, current address, and phone number of third party user(s); b. Expected date of occupancy; c. A photo or sketch illustrating the type of antenna to be installed, as well as any other planned physical changes to the exterior facilities operated by the applicant. If

the proposed use is not specified in the original right-of-way grant, an amendment will be required.

Construction

No surface disturbing activities shall take place on the subject right-of-way until the associated (APD or Sundry Notice) is approved. The applicant will adhere to special stipulations in the Surface Use Program of the approved (APD or Sundry Notice), relevant to any right-of-way facilities.

Post-construction

Upon completion of construction, the applicant will install vehicle barriers at (specific locations along the pipeline corridor) to prevent unnecessary vehicle travel along the (pipeline right-of-way). The applicant will contact the Bureau for details as to the type of barrier and their specific locations.

Upon completion of construction, the applicant shall post as directed by the authorized officer, the Bureau serial number assigned to this right-of-way grant at the following location(s): _____.

The applicant shall erect a metal sign over the centerline of the pipeline(s) near the entry and exit points of the public land, for identification purposes. The signs will be a minimum of four feet tall and will be stamped or engraved with the BLM serial number of this grant. The characters shall be no smaller than one inch high. If the pipeline(s) is at grade or above-ground, the sign may be attached directly to the pipe or pipe hanger.

Prior to any discharge, hydrostatic testing water will be tested and processed, if necessary, to ensure that the water meets local, State, or Federal water quality standards. Prior to discharge of hydrostatic testing water from the pipeline, the applicant shall design and install a suitable energy dissipator at the outlets, and design and install suitable channel protection structures necessary to ensure that there will be no erosion or scouring of natural channels within the affected watershed as a result of such discharge. The applicant will be held responsible for any erosion or scouring resulting from such discharge. Sandbags, rock or other materials or objects installed shall be removed from the site upon completion of hydrostatic testing.

All surface disturbance shall be confined to circles 25 feet in radius, centered around (each pole location). No other surface disturbance will be allowed, unless otherwise specified by the authorized officer.

The applicant shall evenly spread the excess soil excavated from pole holes within the right-of-way/sundry area and in the immediate vicinity of the pole structure.

Prior to termination of the right-of-way, the applicant shall contact the authorized officer to arrange a pre-termination conference. This conference will be held to review the termination provisions of the grant.

Measures Applicable to Recreational Activities and Events

The proposed recreational activity shall not occur between _____ and _____ in order to protect _____ during periods of above-ground activity.

Race course routes shall be inventoried by a qualified biologist within 45 days prior to the proposed event date. The course route and a corridor extending minimally for 50 yards on either side of the centerline of the proposed route shall be inventoried. Course routes shall be adjusted, pending survey results, to the maximum extent possible to avoid disturbance to _____ burrows. Route adjustment may require, for example, use of existing roads or trails, avoidance of wash systems, or maximizing use of previously disturbed areas proximate to the planned race event route.

Race course routes shall be clearly flagged or otherwise marked to minimize straying of vehicles and "braiding" of habitat. Flagging shall be removed within 14 days following

event completion.

Spectator or participant concentration areas shall be clearly delineated. Such locations shall be sited in previously disturbed areas.

The project sponsor shall designate an individual as a contact representative responsible for overseeing compliance with protective stipulations for sensitive resources.

Trash and food items shall be promptly contained and removed from the area upon completion of event activities.

A cultural inventory shall be required and if any cultural resources will be adversely affected by the operator, the operator shall be held responsible for mitigating the impacts as directed by the BLM. Moving the proposed route will generally be the preferred action.

APPENDIX G - OIL AND GAS

Appendix G-1 Oil & Gas Management by Potential

Appendix G-2 Reasonably Foreseeable Development

Appendix G-3 Lease Stipulations

Appendix G-4 The Leasing & Development Process

Appendix G-5 Standard Lease Terms & Conditions

Appendix G-6 Produced Water

Appendix G-1 Oil & Gas Management by Potential

The following tables summarize the availability of public land and Federal mineral estate for oil and gas leasing. Land are divided into various management categories, where they are identified by mineral resource potential. The purpose of these tables is twofold. They assist the BLM in making land use allocations. They also inform the public, by quantifying and placing into perspective the amount of land that is available for oil and gas development.

All lands within the Caliente Resource Area are split into five management categories. They are either "Open for Leasing Subject to Standard Terms and Conditions", "Open for Leasing Subject to Minor Constraints", "Open for Leasing subject to Major Constraints (including No Surface Occupancy)", within a "Discretionary Closure" to leasing, or in a "Non-discretionary Closure" to oil and gas leasing.

The category "Open for Leasing Subject to Standard Terms and Conditions" allows for leasing within the constraints identified on the standard oil and gas lease form (Appendix G-5). Lessees are required to minimize adverse environmental impacts. This includes the requirement to comply with all laws and regulations, including the Endangered Species Act and the Archaeological Resources Protection Act.

"Open with Minor Constraints" refers to areas that are open to leasing with additional stipulations attached to the lease. These stipulations may be imposed to regulate placement, timing of operations, or other activities which may not be covered by the standard lease stipulations. The impact of these stipulations is generally of a lesser magnitude than major constraints. Minor constraints may be imposed due to the presence of natural resources, or for reasons identified by the surface management agency, such as the military.

Lands "Open Subject to Major Constraints" may have stipulations attached to the lease which are more restrictive than minor constraints. In the case of no surface occupancy stipulations, the land can be leased and the oil and gas can be extracted from under the land, but no surface disturbing activities can occur on the land surface. Directional (slant) drilling from adjacent land is commonly used in areas which are subject to no surface occupancy. Other stipulations may restrict certain activities, or delay activities for over four months. Lands that are temporarily unavailable for leasing, such as Wilderness Study Areas (WSAs) that are not recommended as suitable for designation, are included in this category.

"Closed" lands are unavailable for oil and gas leasing. Lands may be closed by "discretionary" means such as withdrawals, segregation, or land classification. Lands proposed for closure within this RMP fall into this category. There are also certain laws and regulations which define what specific lands will be closed to mineral development. These are beyond the control of the BLM and the RMP, and are labeled "non-discretionary" closures. Examples would include WSAs that are recommended for wilderness designation, and congressional designations, such as wilderness.

The amount of lands within each category is displayed by oil and gas potential for each alternative. The classification of High, Moderate, Low or No potential refers to potential for the occurrence of hydrocarbons. These maps were prepared on a regional scale and may not be applicable at an individual site. That is, within an area with high potential, a particular site not have high potential for economic development of hydrocarbons. Acreage calculations include all public and private lands with Federal mineral estate. Acreages are estimated to the nearest 1000.

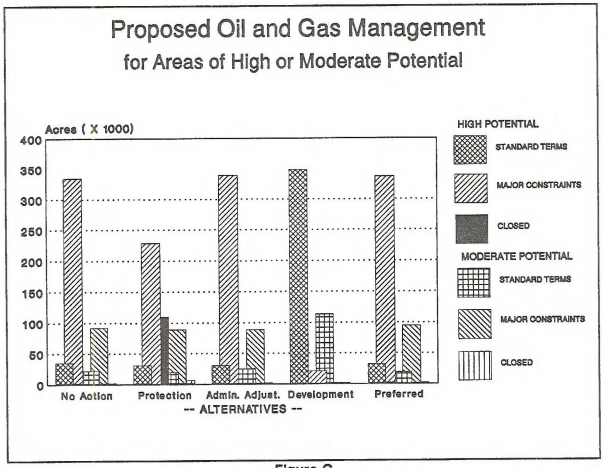

Proposed Oil and Gas Management
for Areas of High or Moderate Potential
Acres (X 1000)
400
350
300
250
200
150
100
50
0
No Action
Protection
Admin. Adjust.
Development
Preferred
-- ALTERNATIVES --
HIGH POTENTIAL
STANDARD TERMS
MAJOR CONSTRAINTS
CLOSED
MODERATE POTENTIAL
STANDARD TERMS
MAJOR CONSTRAINTS
CLOSED

Figure G

OIL AND GAS MANAGEMENT

NO ACTION ALTERNATIVE

	HIGH POTENTIAL	MODERATE POTENTIAL	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS				
COAST	15,000	16,000	24,000	55,000
VALLEY	19,000	5,000	0	24,000
SOUTH SIERRA	0	0	306,000	306,000
TOTAL	**34,000**	**21,000**	**330,000**	**385,000**
MINOR CONSTRAINTS				
SOUTH SIERRA	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**
MAJOR CONSTRAINTS				
COAST	7,000	7,000	0	14,000
VALLEY	324,000	84,000	3,000	411,000
SOUTH SIERRA	2,000	0	86,000	88,000
TOTAL	**333,000**	**91,000**	**89,000**	**513,000**
DISCRETIONARY CLOSURE				
COAST	0	0	0	0
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**
NON-DISCRETIONARY CLOSURE				
COAST	2,000	0	0	2,000
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	39,000	39,000
TOTAL	**2,000**	**0**	**39,000**	**41,000**

OIL AND GAS MANAGEMENT

RESOURCE PROTECTION ALTERNATIVE

	HIGH POTENTIAL	MODERATE POTENTIAL	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS				
COAST	13,000	16,000	22,000	51,000
VALLEY	17,000	2,000	0	19,000
SOUTH SIERRA	0	0	259,000	259,000
TOTAL	30,000	18,000	281,000	329,000
MINOR CONSTRAINTS				
SOUTH SIERRA	0	0	0	0
TOTAL	0	0	0	0
MAJOR CONSTRAINTS				
COAST	7,000	7,000	0	14,000
VALLEY	218,000	81,000	3,000	302,000
SOUTH SIERRA	2,000	0	89,000	91,000
TOTAL	227,000	88,000	92,000	407,000
DISCRETIONARY CLOSURE				
COAST	2,000	0	2,000	4,000
VALLEY	107,000	5,000	0	112,000
SOUTH SIERRA	0	0	43,000	43,000
TOTAL	109,000	5,000	45,000	159,000
NON-DISCRETIONARY CLOSURE				
COAST	2,000	0	0	2,000
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	39,000	39,000
TOTAL	2,000	0	39,000	41,000

OIL AND GAS MANAGEMENT

ADMINISTRATIVE ADJUSTMENT ALTERNATIVE

	HIGH POTENTIAL	MODERATE POTENTIAL	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS				
COAST	13,000	22,000	20,000	55,000
VALLEY	16,000	2,000	0	18,000
SOUTH SIERRA	0	0	267,000	267,000
TOTAL	29,000	24,000	287,000	340,000
MINOR CONSTRAINTS				
SOUTH SIERRA	0	0	17,000	17,000
TOTAL	0	0	17,000	17,000
MAJOR CONSTRAINTS				
COAST	8,000	1,000	4,000	13,000
VALLEY	327,000	87,000	3,000	417,000
SOUTH SIERRA	2,000	0	107,000	109,000
TOTAL	337,000	88,000	114,000	539,000
DISCRETIONARY CLOSURE				
COAST	0	0	0	0
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	1,000	1,000
TOTAL	0	0	1,000	1,000
NON-DISCRETIONARY CLOSURE				
COAST	2,000	0	0	2,000
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	39,000	39,000
TOTAL	2,000	0	39,000	41,000

OIL AND GAS MANAGEMENT

DEVELOPMENT EMPHASIS ALTERNATIVE

	HIGH POTENTIAL	MODERATE POTENTIAL	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS				
COAST	20,000	23,000	24,000	67,000
VALLEY	325,000	89,000	3,000	406,000
SOUTH SIERRA	2,000	0	330,000	332,000
TOTAL	347,000	112,000	357,000	816,000
MINOR CONSTRAINTS				
SOUTH SIERRA	0	0	0	0
TOTAL	0	0	0	0
MAJOR CONSTRAINTS				
COAST	2,000	0	0	2,000
VALLEY	18,000	0	0	18,000
SOUTH SIERRA	0	0	62,000	62,000
TOTAL	20,000	0	62,000	82,000
DISCRETIONARY CLOSURE				
COAST	0	0	0	0
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	0	0
TOTAL	0	0	0	0
NON-DISCRETIONARY CLOSURE				
COAST	2,000	0	0	2,000
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	39,000	39,000
TOTAL	2,000	0	39,000	41,000

OIL AND GAS MANAGEMENT

PREFERRED ALTERNATIVE

	HIGH POTENTIAL	MODERATE POTENTIAL	NO POTENTIAL	TOTAL
STANDARD TERMS AND CONDITIONS				
COAST	15,000	16,000	21,000	52,000
VALLEY	16,000	2,000	0	18,000
SOUTH SIERRA	0	0	270,000	270,000
TOTAL	31,000	18,000	291,000	340,000
MINOR CONSTRAINTS				
SOUTH SIERRA	0	0	26,000	26,000
TOTAL	0	0	26,000	26,000
MAJOR CONSTRAINTS				
COAST	7,000	7,000	3,000	17,000
VALLEY	327,000	87,000	3,000	417,000
SOUTH SIERRA	2,000	0	92,000	94,000
TOTAL	336,000	94,000	98,000	528,000
DISCRETIONARY CLOSURE				
COAST	0	0	0	0
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	3,000	3,000
TOTAL	0	0	3,000	3,000
NON-DISCRETIONARY CLOSURE				
COAST	2,000	0	0	2,000
VALLEY	0	0	0	0
SOUTH SIERRA	0	0	39,000	39,000
TOTAL	2,000	0	39,000	41,000

Appendix G-2 Oil & Gas Reasonably Foreseeable Development

INTRODUCTION

Determining reasonably foreseeable development scenarios for oil and gas requires an analysis based on several factors affecting the petroleum industry. Primarily, events in the past are tempered with predicted economic trends over the plan life. What has happened in the immediate past may be a measure of what will happen in the immediate future.

Because of the great amount of data associated with oil and gas production in the Caliente Resource Area, it was decided to review data over the past ten years, even though most of California's largest oil and gas deposits were discovered prior to 1940. The past ten years have seen great oil price swings. Future predictions are risky, given the proven petroleum market instabilities.

Future development scenarios must be based on **reasonable and foreseeable** events. International instabilities may effect future oil prices in California. However, such events are neither reasonable nor foreseeable, and so are not part of the economic projections. Assumptions are made about petroleum markets in the period from 1992 through 2000.

This paper has five predictive modules, each dependent upon the other. They are:

Oil and Gas Occurrence Potential

Oil Price and Economic Assumptions, 1990-2000

Oil and Gas Exploration

New Field Discoveries

Oil and Gas Development

Surface Disturbance from Oil and Gas Activity

These modules predict oil and gas development scenarios over the plan life. The predictions foretell: where development will be, development intensity, timing, and acres of surface disturbance. The petroleum industry in California is very much affected by geo-political events. Oil and gas supply-demand-price scenarios can change overnight if unforeseen events occur, in which case this document can be updated.

OIL AND GAS OCCURRENCE POTENTIAL

Basis for classification. The oil and gas occurrence potential for the Caliente Resource Area (Resource Area) was mapped on a series of 17 30' X 60' BLM land status maps (scale: 1:100,000). Table G-1 shows how many acres of the Caliente Resource Area each classification covers.

BLM policy and guidance. The backbone of the Bureau's oil and gas planning guidance is the "Supplemental Program Guidance for Energy and Mineral Resources," (SPG) otherwise known as Handbook H-1624-1. Washington Office Instruction Memorandum 89-780 dated September 27, 1989 supplements the SPG by requiring the use of United States Geological Survey (USGS) resource estimates in land use plans. Washington Office Instruction Memorandum 89-780 also prescribes the following classification categories and definitions:

High: (1) Inclusion in a USGS oil and gas play. Or, (2) in the absence of a USGS play, the demonstrated existence of (a) source rock, (b) thermal maturation, and (c) reservoir strata exhibiting permeability and/or porosity, and traps.

Moderate: Geophysical or geological indications that (a), (b), and (c) above are present.

Low: Specific indications that one or two of (a), (b), or (c) may not be present. No Bureau managed surface or mineral estate is classified Low within the Resource Area.

Potential	Acres	% Caliente Resource Area
High	5,462,000	47%
Moderate	2,376,000	21%
Low	15,000	<1%
None	3,647,000	32%

Table G-1. Acreages of oil and gas potential classifications for all lands within the boundary of the Caliente Resource Area.

None: Demonstrated absence of (a), (b), and (c) that precludes the occurrence of oil and gas.

USGS oil and gas plays. Plays for the Caliente Resource Area are described in Beyer and Bartow (1987). In requiring all USGS plays to be rated as high, Washington Office Instruction Memorandum 89-780 assumed that all play limits were based on structural and stratigraphic criteria limiting oil and gas occurrence. In earlier occurrence potential studies, such criteria were found to be weak or missing. Rather, play boundaries were commonly based on physiographic limits. Indeed, in their reports, the USGS admits that play boundaries are sometimes set "..arbitrarily.." (Beyer, 1988a, p. 1) or based on "..geographic.." criteria (Beyer, 1988b, p. 32).

After being advised of the discrepancy, the Washington Office clarified Washington Office Instruction Memorandum 89-780, Change 1, dated March 14, 1990, specifies that USGS plays need not be classified entirely as high. This supports the Bakersfield District BLM's long-standing policy of basing occurrence potentials on specific geologic or geophysical criteria.

The Caliente Resource Area includes four producing basins: San Joaquin, Cuyama, Santa Maria, and Ventura. Beyer and Bartow (1987) define seven USGS plays, all within the San Joaquin basin. The Cuyama, Santa Maria, and Ventura basins were not in their report, and are here designated as BLM plays 8, 9, and 10.

The definitions for plays 1-7 are from Table 5 of Beyer and Bartow (1987). Plays 8-10 (BLM) are defined in the current report.

Play 1: Uppermost Miocene to Pleistocene marine and nonmarine sandstones.

Play 2: Upper Miocene West- and Southwest-sourced channel and turbidite sands.

Play 3: Middle and upper Miocene fractured shales and diatomaceous rocks (primarily Monterey Fm.)

Play 4: Upper Eocene to Recent marine and nonmarine sandstones.

Play 5: Upper Cretaceous through Miocene and nonmarine sandstones.

Play 6: Upper Cretaceous through middle Miocene marine sandstones.

Play 7: Upper Cretaceous through Miocene marine and nonmarine sandstones.

Play 8: (Cuyama basin), early Miocene through early Pliocene marine sandstones.

Play 9: (Santa Maria basin), Oligocene through early Pliocene marine sandstones and fractured shales.

Play 10: (Ventura basin), late Eocene through Pleistocene marine and nonmarine sandstones and shales.

The San Joaquin basin is by far the most important Neogene depocenter in terms of cumulative production (Figure G-1).

Discussion of oil and gas occurrence potential maps. In compliance with the SPG, the following geologic criteria define the Resource Area's oil and gas occurrence potential classifications:

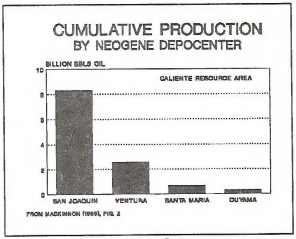


Figure G-1

High: Marine sands and shales of upper Cretaceous to Pleistocene age with sufficient burial depth, source rocks, and reservoir character to have proven production. Areas classified as high potential may see new discoveries within the plan's life. Most new reserves, however, will come from existing fields where improved enhanced recovery techniques are used. Field expansions and new pool discoveries will be important. A more detailed discussion follows.

In the Caliente Resource Area, the limits of high potential are defined as Cenozoic marine depocenters where the Kreyenhagen and Monterey formations are present at depths sufficient to generate movable hydrocarbons. In addition to these source rocks, the basins are characterized by migration pathways, reservoir rocks, and traps.

Moderate: Areas where late Cretaceous through late Miocene marine rocks outcrop which, through indirect evidence, have good production potential but no proven production. These rocks are primarily clastic rocks which have gone through post-Miocene uplift.

Low: Nonmarine basins lacking known source beds. These include down-dropped "basin and range" structural blocks, primarily in desert areas. Although drilling has occurred sporadically over the years and there is currently limited industry interest in these areas, Mast and others (1989) predict no

undiscovered oil and gas resources. Only a small area near the Garlock Fault in the extreme southeast corner of the Resource Area is mapped as low potential.

None: Jurassic metamorphic (primarily Franciscan) and pre-Jurassic metamorphic and intrusive (primarily Sierra Nevadan batholithic) basement rocks are classified as having no occurrence potential.

Occurrence of source rocks and traps. The Monterey Formation, either as a reservoir rock itself or as a source for reservoirs in younger rocks, accounts for 90% (MacKinnon, 1989) of the oil production within an area including the Caliente Resource Area (Figure G-2). The Monterey and equivalent rocks can be correlated among the four producing basins, though its character changes across the San Andreas Fault to the San Joaquin Basin. In the San Joaquin Basin the Monterey becomes much more clastic, and fractured shale reservoirs are not as important as in the coastal basins (Figure 7).

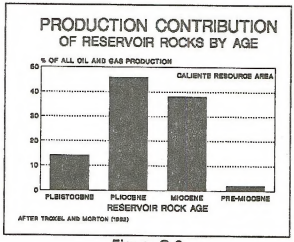


Figure G-2

California has been the location of a leading edge (or active) plate margin since the early Mesozoic. At that time, this margin was marked by a subduction zone marked by an oceanic trench, with the Proto-Pacific plate descending under the North American Plate. In the late Oligocene, as the modern Pacific Plate approached North America, its eastern boundary (a spreading-center triple-junction) collided with the trench. This altered the North American/Pacific Plate boundary from oblique subduction to right-lateral transform.

The transform initiated a right-lateral strike-slip fault system on the North American continental plate. It is termed the ancestral San Andreas Fault system. Movement along the fault system has jumped progressively eastward. This led to sliver after sliver of the North American Plate being added to the Pacific Plate. These slivers then began moving northerly with the Pacific Plate, no longer westerly with the North American Plate.

During late Oligocene to early Miocene, extensional tectonics dominated the plate margin. Normal faulting, volcanism, and rapid down-dropping of basins characterized this period. The new basins were rapidly filled with clastic (terriginous) sediments. In some areas clastic sedimentation ceased abruptly about 17.5 million ago, allowing marine biogenic processes to dominate (MacKinnon, 1989). This abrupt change in sediment character marks the beginning of the Monterey Formation deposition.

A combination of several factors were responsible for this marked change in deposition character. These include a change in climate from warm to cooler, marked by a change to high ocean productivity of siliceous organisms (primarily diatoms) due to upwelling of cold waters, from that of calcareous organisms, which were favored by the previous warm paleo-temperatures along the California coast. An important process within interior basins and shelf areas was the trapping of clastic sediments, allowing nearly pure siliceous diatomites to form.

Although the siliceous facies of the Monterey are the most widespread and distinctive, calcareous and phosphatic facies are recognized in the lower portions of the Monterey in coastal basins. These three distinct facies are poorly represented or absent in the San Joaquin basin (MacKinnon, 1989).

In portions of the Monterey which have sufficiently pure diatomite composition, the siliceous composition of the Monterey Formation changes phase upon burial due increasing pressure and temperatures (Figure G-3). The initial diatomaceous stage (opal A) is highly unstable and changes to opal CT (porcelanite) at temperatures of 113°-122° F. Diatomite itself has high porosity and low bulk density and is present generally at the top of the Monterey section and along basin margins, where burial was minimal.

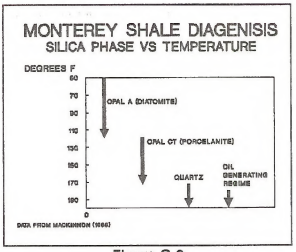


Figure G-3

Oil generation occurs in the regime of 176°-187° F. (Figure G-3) This means that diatomite, owing to its low temperature stability field, is not usually buried deeply enough to be good source rock. Diatomite is potentially a good reservoir rock from the stand point of oil volume, owing to its high porosity (up to 60%), but its permeability is low.

Opal CT is more dense, with less porosity than diatomite. Effective permeability is still low, often occurring only as fracture permeability. The transformation of opal CT to quartz occurs between 167°-185° F. (Figure G-3), again with a reduction in porosity (down to 10-25%), and effective permeability often as low as <1 millidarcy (md) leaving fractures as the important migration pathways for oil. Fracture permeability becomes more important as phase changes continue. In fact, unless fractured, the diatomaceous Monterey does not usually make a good reservoir. Phase changes to quartz fall within the temperature regime required for oil generation, and the quartz phase apparently would lead to the primary hydrocarbon generation. On the coast, the phosphatic phase has shown very high organic carbon contents, and therefore would be a primary source interval also.

Fractured reservoirs of the Monterey Formation are important in the Santa Maria basin and, to a lesser degree, on the west side San Joaquin basin (Lost Hills). However, most reservoirs within producing fields of the Caliente Resource Area are in the San Joaquin Valley, and many of these are sandstones (such as the Stevens) are either within the Monterey or stratigraphically and/or structurally higher and are sourced by the Monterey. The Stevens Sand is a turbidite sequence within the Monterey, and is a prolific producer in Elk Hills and other fields south and west of the San Joaquin basin.

The Monterey Formation ranges in thickness between 980-3300 ft, although it exceeds 9800 ft in the deepest part of southwest San Joaquin basin. Monterey deposition continued until about 6 million years ago, when a major tectonic event resulted in greatly increased uplift and concomitant increase in clastic sedimentation. This event was apparently the change in plate vector between the Pacific and North American Plates, from nearly pure translational (right-lateral strike-slip) to compressive/translational (sometimes termed transpressional). The contact between the Monterey and overlying rocks is an unconformity in some areas and gradational in others.

Tectonism continued through the Pliocene and into the Pleistocene, with Neogene depocenters subsiding and basin margins being uplifted (MacKinnon, 1989). Locally rapid burial of the Monterey to oil-generating pressures and temperatures resulted in the source rock portions of it expelling hydrocarbons, which then migrated into reservoirs. Continued transpression during the Pleistocene resulted in folding and faulting that later provided hydrocarbon traps, particularly near basin margins.

Compressive tectonism continues today, as evidenced by the seismic history of the San Joaquin

OIL AND GAS POTENTIAL BY COUNTY								
	BLM RESERVED MINERAL ESTATE				BLM SURFACE AND MINERAL ESTATE			
COUNTY	TOTAL	HIGH	MOD.	NO	TOTAL	HIGH	MOD	NO
KERN	290,000	112,000	28,000	150,000	218,000	75,000	22,000	121,000
KINGS	23,000	17,000	6,000	0	11,000	7,000	4,000	0
SLO	66,000	21,000	27,000	1,800	138,000	102,000	23,000	11,000
S. BAR	16,000	15,000	1,000	0	7,000	6,000	1,000	0
TULARE	47,000	1,000	0	46,000	112,000	0	0	112,000
VENTURA	10,000	10,000	0	0	3,000	3,000	0	0
TOTAL	452,000	176,000	62,000	214,000	487,000	193,000	50,000	244,000
OIL AND GAS POTENTIAL BY MANAGEMENT AREA								
COAST	52,000	17,000	16,000	18,000	19,000	6,000	7,000	6,000
VALLEY	205,000	157,000	46,000	3,000	230,000	187,000	43,000	0
SO. SIERR	195,000	2,000	0	193,000	238,000	0	0	238,000
TOTAL	452,000	176,000	62,000	214,000	487,000	193,000	50,000	244,000

Table G-2. Acres of mineral estate by potential, county and Management Area. Reserved mineral estate lands are private surface/ Federal minerals for which BLM has management responsibility.

Valley and adjacent areas. For example, Wheeler Ridge is a very young anticline that continues to rise in response to north-south compression. The 1952 Kern County earthquake resulted from thrusting along the White Wolf fault, uplifting Wheeler Ridge. The 1984 Coalinga earthquake was due to movement along a buried thrust fault.

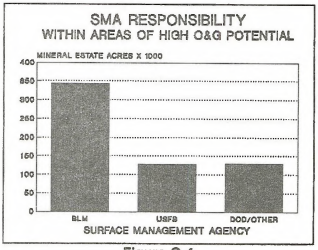


Figure G-4

A wide variety of petroleum traps are responsible for oil accumulation within producing fields of Caliente Resource Area. Fractured schist basement rocks are found in the Edison field on the east margin of the San Joaquin Basin. However, most oil production within the Caliente Resource Area comes from stratigraphic traps, anticlines, or a combination of the two on the west side of the San Joaquin basin (Troxel and Morton, 1962). An example is the lateral shaling out of the Stevens Sand in Elk Hills. Lenticular sands deposited along the margins of ancient seas are also important, particularly at Midway Sunset (Troxel and Morton, 1962).

Federal mineral estate within potential classifications. The Resource Area was analyzed to account for Federal mineral estate in areas of high, moderate, and low/no potential. Table G-2 lists the acreage statistics for BLM managed lands, including public land and split estate. The BLM has

more than twice the acreage responsibility than either USFS or Department of Defense among the 570,000 acres of Federal minerals classified as high potential (Figure G-4).

Undiscovered reserves. Most undiscovered oil and gas reserves within the Caliente Resource Area lie within or near the administrative boundaries of existing fields. Traps will often be subtle and complex. Their discoveries may require new advances in geophysical (primarily seismic) technology. Table G-3 is a summation of undiscovered oil equivalent reserves for producing basins of the Caliente Resource Area. Barrels (BBLs) of oil equivalent include gas and natural gas liquids (condensate). (Data from Mast and others.)

Fractile	F_{95}	Mean	F_5
San Joaquin	0.83 BBOE	2.31 BBOE	4.85 BBOE
Ventura	0.23 BBOE	0.91 BBOE	2.24 BBOE
Santa Maria	0.14 BBOE	0.31 BBOE	0.59 BBOE
Totals:	1.20 BBOE	3.53 BBOE	7.68 BBOE

BBOE = Billion barrels of oil equivalent (gas = 6 MCF/ BBL).

Fractile = probability of discovery:
F_{95} = 95%, F_5 = 5%

Table G-3. Estimates of undiscovered oil and gas reserves in the Caliente Resource Area.

ECONOMIC ASSUMPTIONS TO YEAR 2000

Supply/demand. Hager (1989) presents a stable outlook for oil and gas supply and demand until the year 2000, with demand slightly exceeding supply. Hager does not predict any major swings in oil and gas prices, supply, or demand, based on a relatively stable geopolitical outlook.

Hager, however, couldn't foresee the Iraqi invasion of Kuwait during August of 1990. Although the invasion had major impacts on oil prices, worldwide supply and demand remained stable. Supply has been supported by additional OPEC production, while demand decreased slightly. For this report, the assumption is made that Hager's (1989) supply/demand estimates are valid.

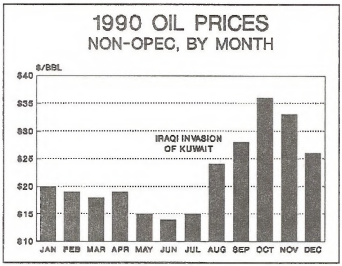


Figure G-5

Prices. During 1990, the price of oil swung between historic lows and highs (Figure G-5). These price extremes reflect speculative fears of what an event such as the Gulf war might do to supply, as opposed to any real shortfall. At this writing (March, 1992), oil prices are fluctuating in the $20/BBL range.

An example of the rapid fluctuations possible in a war scenario can be seen in a brief review of the 1991 Persian Gulf War. On January 16, 1991, hostilities between the Allies and Iraq intensified. The extreme volatility of oil prices based on fear was exemplified on January 17, when an all-time record

one day drop of $12/BBL occurred. Continued political unrest in the Middle East in general could significantly affect prices over the short and long term.

Predictions suggest a sluggish economy through the early 1990's, as the economy remains sluggish through the early 1990s, the resulting low demand for petroleum will keep oil price increases to about 2% per year. In their 1990 Fuels Report, the California Energy Commission predicted a steady 2% per year increase in oil prices through 2009. For gas, Hager (1989) predicted a 5.5% per year increase through 2000. This estimate concurs with that of Mast and others (1989). These estimates may prove to be high, as gas prices in 1990 remained stable despite wildly fluctuating oil prices.

Figure G-6 shows the oil price projection used in support of the Caliente Resource Area RFDS scenario. This scenario based on the previously mentioned supply, demand, and price projections, coupled with these assumptions:

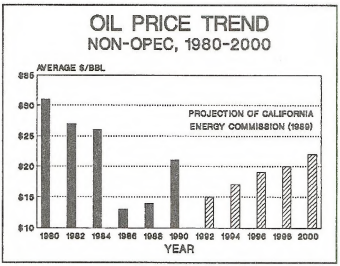


Figure G-6

1. War in the Middle East will not flare up and will have little or no effect on long term oil prices; pre-war price projections for the post-war period will be valid.

2. The economy will remain sluggish well into the 1990 decade.

3. In 1992, oil prices will continue their post-1986 and pre-1990 upward trend of about 2% per year. This rate of increase was projected by the California Energy Commission in their 1989 Fuels Report (1988 dollars). The trend predicted in Figure G-6puts oil prices in 2000 at around $22/BBL (1988 dollars).

OIL AND GAS EXPLORATION

Oil and gas exploration activities within the Caliente Resource Area generally consist of drilling prospect wells and running seismic lines. Exploration and prospect drilling are done to discover entirely new fields (wildcats), expansion of existing fields (extension), or to discover previously untapped reservoirs within existing fields (new pool). Exploration and prospect drilling are grouped together as prospect drilling in the discussion following. Wildcat drilling activity is of greatest importance to the RMP, for such drilling is usually outside of existing fields in areas that may be previously undisturbed.

General trends for prospect drilling. Since 1980, the number of prospect wells drilled on all lands in the Resource Area has generally been less than 100 per year. The years 1984-1985 saw an increase in drilling that rapidly fell off during the oil price collapse of 1986.

The gradually decreasing trend of prospect drilling is projected to continue over the plan life. There has been a marked reduction in drilling since 1987 (Figure G-7). However based on the historical trend, between 60 and 100 prospect wells are predicted to be drilled annually for all lands in the Caliente Resource Area over the plan life. The number of prospect wells drilled on Federal land follows the general trend for all drilling.

Since 1980, between two and nine prospect wells per year have been drilled (Figure G-8). The historic trend is decreasing for Federal wells except for the 1984-1985 period. Based on historic activity, we predict the level of Federal prospect well drilling to gradually decline over the plan life, within a range of one to four wells per year.

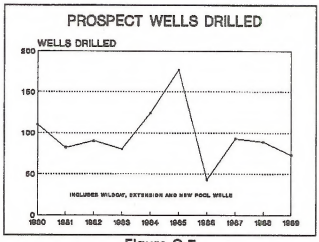


Figure G-7

The Caliente Resource Area includes all or portions of six Counties. Since 1980, Kern County (San Joaquin basin) has had the largest share (67%) of all prospect drilling activity within the Caliente Resource Area. Santa Barbara (Santa Maria basin) and Ventura (Ventura basin) Counties each account for about 10% of all prospect wells drilled since 1980. The remaining activity is divided among Kings (5%), Tulare (3%), and San Luis Obispo (5%) Counties.

In all of the Caliente Resource Area, Federal prospect wells account for only 4% of all exploration drilling activity. At 31 wells, Kern County accounts for 72% of all Federal prospect wells drilled during 1980-89 (Table G-4). Federal prospect drilling will be concentrated in Kern County over the plan life, with 20-35 wells projected. Between 10 and 20 prospect wells will be drilled in the other counties.

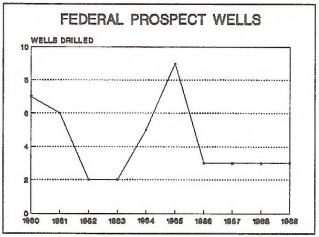


Figure G-8

Wildcat drilling. The rate of wildcat well drilling in the Caliente Resource Area during 1980-89 varied between 20 and 100 wells per year. The boom of 1984 was followed by a bust in 1986. Wildcat activity has leveled off since 1986, with a slight increase in 1991.

Overall, wildcat wells comprise about 46% of all prospect drilling. Although Kern County had the most wildcat wells drilled during 1980-1989 (Table G-4), the proportion of wildcats to all prospect wells was lowest of all counties at 36%. In contrast, wildcat drilling accounts for 90% of prospect drilling in Kings, Tulare, and San Luis Obispo Counties.

Data on Federal prospect wells is sketchy, but Federal wildcat wells appear to be rare. Over the plan life, there is a greater than 90% probability that between 20 and 80 Federal wildcat wells will be drilled within high potential areas of Kern County. There is a less than 10% probability that wildcat wells may be drilled on public lands in high potential areas of southeastern San Luis Obispo County, particularly in the Carrizo Plain area. Much of the public lands in the Carrizo Plain area is split estate, with the minerals held in fee.

Extension and new pool prospect drilling activity. Extension and new pool drilling are generally done within or near the administrative limits of producing fields. Extension well drilling exceeds new

pool drilling by a factor of five. During the period 1980-1989, 348 extension wells were drilled, compared to 68 new pool wells.

Between 1980 and 1989, the annual totals of these "in-field" prospect wells in the Caliente Resource Area varied between 10 and 140 wells per year. As with wildcat wells, the mid-1980s boom was followed immediately by a bust in 1986. The steep downward trend in drilling of the late 1980s is not expected to continue into the 1990s as oil prices stabilize (Figure G-9). Between 30 and 50 extension and new pool wells are expected to be drilled per year in the Caliente Resource Area over the plan life.

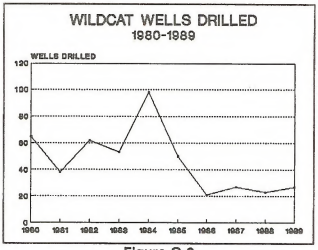


Figure G-9

HISTORICAL PROSPECT DRILLING ACTIVITY 1980-89	KERN CO.	SANTA BARBARA CO.	VENTURA CO.	KINGS CO.	TULARE CO.	SAN LUIS OBISPO CO.
Total Prospect Wells	668	108	97	49	30	48
Federal Prospect Wells	31	2	4	0	1	5
Total Wildcat Wells	239	57	51	44	26	45
PROSPECT DRILLING ACTIVITY TRENDS OVER PLAN LIFE						
Total Prospect Wells	500-700	70-120	80-110	35-60	20-35	35-60
Federal Prospect Wells	20-35	0-5	1-6	0-5	0-5	2-7
Total Wildcat Wells	180-250	45-65	35-60	30-55	15-30	30-55
Federal Wildcat Wells	20-80	0-10	0-10	0-10	0-10	0-10
Other Fed. Prosp. Wells	15-30	0-5	1-6	0-5	0-5	1-6

Table G-4. Historical and projected drilling activity. Wildcat wells are drilled outside producing fields. Prospect wells include all wildcat, extension, and new pool drilling.

Over the plan life, Kern County fields will lead the way with roughly 300-500 extension and new pool wells during the 1990s. About half of the prospect drilling in Santa Barbara and Ventura Counties will be extension and new pool wells. Only 10% of all prospect drilling Kings, Tulare, and San Luis Obispo Counties will be extension and new pool wells (Table G-4). No one field stands out as dominant in new pool and extension drilling. However Edison, Midway-Sunset and Lost Hills fields have seen consistently higher levels of activity than other fields.

Between 15 and 50 extension and new pool wells are expected to be drilled on Federal land in the Caliente Resource Area over the plan life (Table G-4, "Other Fed. Prosp. Wells"). At least 60% of

these wells will be in Kern County fields, with the remainder primarily in Ventura and San Luis Obispo Counties. Extension and new pool drilling on Federal lands will be primarily on public domain and split estate lands. Most Federal activity in Ventura County will be on USFS lands.

Seismic exploration. Recent advances in seismic data interpretive techniques are playing important roles in new field discoveries, particularly with regard to gas. Western Geophysical is the most active company in the Caliente Resource Area, with 5500± miles of speculative data gathered since the late 1970s. About 94%, or 5200 miles, of Western's activity is in the San Joaquin/Cuyama basins (Figure G-10). Western's operations account for about 50%-70% of all seismic activity in the Caliente Resource Area (personal communication with company officials). Given unknown amounts of proprietary data gathered in addition to the work of other geophysical firms, the 5500 ± miles reported by Western may only be half of the total seismic activity in the Caliente Resource Area since the late 1970s.

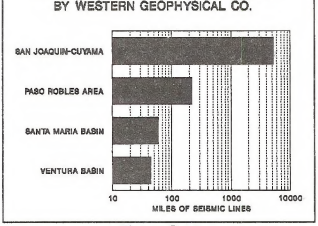


Figure G-10

Seismic exploration will continue to play an important role in new field discoveries over the plan life, especially in the San Joaquin basin. Most if not all new field discoveries based on seismic will be in the San Joaquin basin.

Surprisingly, the Paso Robles (Camp Roberts) area has attracted seismic interest, even though the known oil and gas occurrence potential is now rated as only moderate. In the event that a new field discovery is made within an area of moderate potential, it will probably be by seismic exploration and in this area.

Industry sources (Western Geophysical, Geodata Corporation) expect significantly lower levels of seismic exploration activity over the next decade. Estimates are that only 25% of the activity seen during the 1980s will occur. If so, then 1500-4000 miles of seismic data can be expected to be gathered in the Caliente Resource Area over the plan life (Table G-5).

The Caliente Resource Area staff reports 50-100 miles per year of seismic lines run on public land in the Caliente Resource Area, with an average of 60 miles per year since the late 1970s. Survey mileage data is not available for seismic lines run on non-public Federal lands or split estate. The average of 60 miles per year on public lands accounts for 6%-12% of all seismic surveys. If the same ratio continues over the plan life, the Caliente Resource Area can expect 100-500 miles of seismic surveys over the plan life. At least 90% of these surveys will be in the San Joaquin Valley.

Expected Seismic Survey Activity Over the Plan Life	
All lands in RA	1500-4000 Miles
Public lands in RA	100-500 Miles

Table G-5

NEW FIELD DISCOVERIES

Historical Perspective. The first new field discoveries in the Caliente Resource Area were made as early as the 1860s when oil was mined from rich seeps. Prior to this time, oil seeps were known to

Indians and early settlers for waterproofing and lubricants. The town of Carpinteria was named after the use of the local oil seep by Indians to caulk their boats. Oil production from wells for refining began in the 1880s.

New field discoveries averaged around eight per year until the 1920s, when the burgeoning automobile market increased demand for petroleum. Prior to the 1930s, new fields were identified primarily by oil seeps and surface anticlinal expression. The introduction of seismic survey and electric logs combined with increased petroleum demand in the 1920s through 1940s resulted in sharply increased new field discovery rates (Figure G-11).

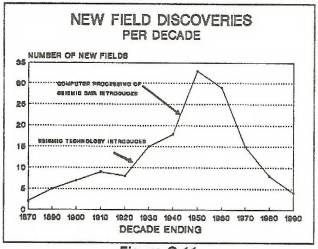


Figure G-11

The rate of new field discoveries reached a maximum of 35 per decade during the period 1940-1950, when war and post-war demand for oil resulted in large markets. Although rudimentary by today's standards, attempts were made during this period to automate the vast quantities of data generated by seismic surveys. More seismic data processed in shorter time combined with a strong petroleum product market led to the many new discoveries.

A sharp decline in the rate of new field discoveries began in the 1950s as the easily identifiable and shallow fields had been discovered. About 82% of all producing fields within the Caliente Resource Area were discovered prior to 1960 (Figure G-11). The sharp oil price increases of the 1970s and early 1980s resulted in moderation of the decline, which is expected to continue into the 1990s.

As the rate of new field discoveries has markedly decreased over the years, so too have new field sizes in terms of ultimate reserves (ultimate reserves = cumulative production + 1990 proven recoverable reserves). Beginning in 1920, newly discovered field sizes (ultimate reserves) decreased steadily until 1950 (Figure G-12). During 1910-1920, three giants were discovered: Elk Hills, South Belridge, and Ventura. The Caliente Resource Area's other two giant fields, Midway Sunset and Kern River, were discovered in the late 1800s.

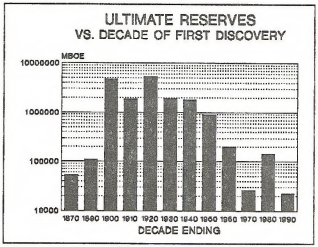


Figure G-12

Projected new field discovery rates. Prior to 1940 the general discovery rate was 1.8-2.5 billion BBLs of oil equivalent (BBOE, includes gas at 6 MCF/BBL) per decade. The rate of new field discoveries in the Caliente Resource Area has assumed a steady decline since the 1950s (?). Fitting a statistical trend to the data yields the projection that few new fields will be discovered after 2000. The trend will probably level off or slightly increase over the plan life.

In 1990 alone, two new fields were discovered (Bowerbank SE Gas and Lost Hills-West Oil, see January, 1991 Pacific Oil World for details). Two new field discoveries in one year is anomalous in view of post-1950 discovery rates per decade. Based on the historic wildcat success ratio of 1:15-20 and the latest discovery rate, from three to ten new field discoveries are predicted over the plan life.

Projected new field sizes. Newly discovered fields within the Caliente Resource Area have varied greatly in size. Because of the extreme ranges of reserve values, median field sizes were computed and plotted (Figure G-13). Median values are those for which half of all fields will be greater, and half smaller. Median values were used instead of mean because of the mean's sensitivity to extreme data endpoints. For this study, the median is considered to be the most probable new field size.

Since the 1940s, median new field sizes have ranged between 0.4 and 7 MMBOE (Figure G-13). One of the largest fields discovered since the 1940s is Yowlumne (southern San Joaquin valley) at 17.2 MMBOE. Over the plan life we expect the median field size trend to decrease somewhat. New fields will range in size between 1-10 MMBOE, with 2-4 MMBOE as most likely sizes.

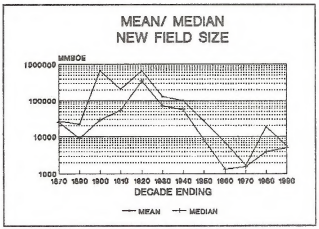


Figure G-13

Projected new field locations. Based on historical trends, most new fields in the Caliente Resource Area will be discovered within high occurrence potential areas of the San Joaquin basin. Since 1960, 68% of all new fields have been in the San Joaquin basin. Since 1970, 86% of all fields have been in the San Joaquin basin. All fields discovered since 1973 have been in the San Joaquin basin. We project 80%-95% of all newly discovered fields to be in San Joaquin basin, or between two and nine fields. The remaining fields will, based on historical trends, be in the Ventura basin.

OIL AND GAS DEVELOPMENT

Oil and gas development within the Caliente Resource Area will be primarily limited to infield drilling within existing fields. Other types of development include new field, extension, and new pool drilling. The following discussion on development concentrates on three areas: general trends for the Caliente Resource Area, trends for Midway Sunset field (where most Federal oil and gas development will occur), and trends for a hypothetical new field of the size expected to be discovered over the plan life. The life of the oil and gas plan is assumed to be 10 years. This is different from other resources which may have plan lives of 15-20 years.

General trends for the Caliente Resource Area. Most development activity within the Caliente Resource Area occurs within giant fields. Giant fields are defined as having produced or having ultimate recoverable reserves of at least 100 million barrels of oil equivalent (MMBBOE). There are 32 giant fields within the Caliente Resource Area. Seven account for 57% of all cumulative production through 1989 in the Caliente Resource Area (Figure G-14). Of these seven fields, six are located in the San Joaquin basin and one in the Ventura basin.

Most giant fields within the Caliente Resource Area were discovered prior to 1940. Indeed, the only giant field discovery made since the 1940s was Yowlumne (1974) in the southern San Joaquin basin.

Based on the economic assumptions cited in this report and historical trends, *no new giant fields are predicted to be discovered over the plan life.*

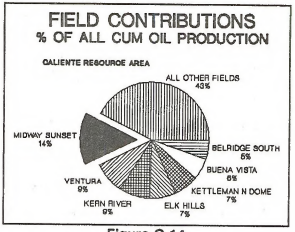


Figure G-14

No major oil price increases are predicted over the plan life. As such, no major increases in development activity are projected. Oil and gas production activities will be reflective of the historical trends of the past ten or so years. Future oil development in the Caliente Resource Area will rely increasingly on heavy crude production. Although no major breakthroughs in enhanced technology are foreseen, there will be refinements of existing technology. These refinements may result in nominal increases of proven reserves to be produced primarily by infill development. The bulk of the Caliente Resource Area's production will continue to be thermal (primarily cyclic steam and steam or hot water floods).

In 1989 [the latest year of statistics for the California Division of Oil & Gas (CDOG)], four fields dominated the Caliente Resource Area oil and gas production (Figure G-15): Belridge South (60 MMBOE), Midway Sunset (57 MMBOE), Elk Hills (56 MMBOE), and Kern River (45 MMBOE). The four fields are within the San Joaquin basin, and they accounted for 73% of all 1989 the Caliente Resource Area production. Fewer new fields are being discovered over time, therefore these older fields will continue to dominate Caliente Resource Area production over the plan life.

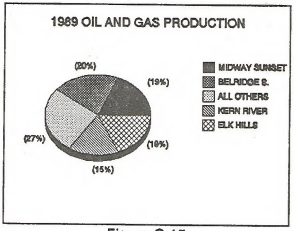


Figure G-15

Kern River had the least 1989 production of the four fields. Even so, at 45 MMBOE it's production exceeded the next ranking field by a factor of five (Lost Hills, 9 MMBOE). Note that in terms of cumulative production (Figure G-14), the Ventura field is ranked second to Midway Sunset, and Belridge South is ranked last among the top seven fields. In the future, Ventura will continue lose ground in the cumulative production rankings. Similarly, Belridge South may move ahead in the cumulative production rankings to assume a 7%-9% share within the plan life, equalling the shares of Elk Hills and Kern River. Large numbers of wells are needed for heavy crude production. Table G-6 lists the number of wells by type for the top four producing fields of 1989.

A common development pattern of the largest four fields is one acre per well. Midway Sunset, because of its great size, has almost twice as many wells as Kern River and Belridge South. Elk Hills has an anomalous spacing due to lighter oil production in the sub-Tulare formations. The development there is being controlled by Department of Energy. Spacing of one acre per well is reflective of heavy crude production. Low gravity oil moves very slowly through the reservoir, albeit in great quantities. Development in these four fields will continue at the net rate of one acre per well over the plan life.

FIELD	PROD WELLS	SI PROD	INJ WELLS	SI INJ	SUB TOTAL	PROVEN	ACRE/ WELL
BELRIDGE S.	5,450	2,004	1,547	432	9,433	8,860	1
MIDWAY S.	10,109	3,425	5,497	261	19,292	22,415	1
ELK HILLS	1,167	668	160	19	2,014	20,620	10
KERN RIVER	7,001	1,792	3,224	1,122	13,139	10,280	1
TOTALS	23,727	7,889	10,428	1,834	43,878	64,029	1

Table G-6. Number of wells (CDOG 1989) in top producing fields. Shut-ins are assumed capable of production. Well spacing varys greatly within fields. SI=Shut-in, INJ=Injection.

BLM areas of responsibility within existing fields. Table G-7 lists the producing fields of the Caliente Resource Area in which the BLM is known to have responsibility for the mineral estate. In addition to public lands, BLM also administers split estate (private surface/Federal minerals). A total of 57 producing fields contain BLM land, with four fields being totally within BLM management (Capitola Park, Cienaga Canyon, Morales Canyon, and Temblor Hills). Of the 573,259 total acres within administrative field boundaries, 75,780 acres, or 13%, are under BLM management. Table G-7 does not include other lands administered by other Federal surface management agencies. Within oil and gas fields, split estate lands (47,740 acres) account for 63% of mineral estate managed by the BLM.

Of the top four producing fields of 1989, only Midway Sunset has a significant amount lands for which the BLM is responsible. Of the 65,070 total administrative acres, the BLM administers 16,190 acres, or 25%. As discussed below, Midway Sunset will account for the vast majority of development activity on BLM lands over the plan life.

Federal Applications for Permit to Drill (APDs). The Caliente Resource Area approves APDs for Federal lands, including USFS and Department of Defense. Most APDs received are for work on BLM administered lands. Historical levels of APD activity may be a measure of future activity. Since 1985, 602 APDs have been approved by the Caliente Resource Area. Of these, 491 APDs (82%) have been for Midway Sunset (Figure G-16). The level of APD approvals for Midway Sunset outranks second place Sespe ***by a factor of 14***. Mt. Poso is a close third behind Sespe. Most if not all APDs in Sespe are on Forest Service land.

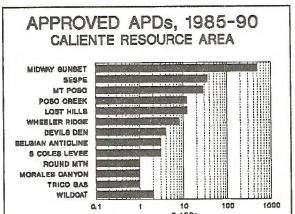


Figure G-16

Within the Caliente Resource Area there are three general areas where APDs have been concentrated since 1985: the west side of the San Joaquin Valley (primarily Midway Sunset), the upper east side of San Joaquin Valley, and within the Sespe field of the Ventura basin. Only two APDs were issued for lands outside of existing fields. These wildcat APDs were both in San Luis Obispo County, one of which was in an area of moderate potential.

Extrapolations of the 1985-1990 data over the plan life suggests that most APDs will be located in areas of high oil and gas occurrence potential on the west side San Joaquin Valley. Some 800-1200 APDs are probable. The upper east side San Joaquin Valley (Mt. Poso area) will accrue 60-100 APDs, and the south-central San Joaquin may have 10-20 APDs. Another 20-40 APDs may be issued within the San Joaquin basin outside of the above areas.

Table G-7. Oil and gas fields of Caliente RA with public and split estate lands (all numbers are in acres).

FIELD (*Likely to have APDs over plan life)	ADMIN AREA	PUBLIC LAND	SPLIT ESTATE	TOTAL BLM	BLM % TOTAL
ANT HILL	1,099		160	160	15%
ASPHALTO	1,903	640	160	800	42%
BARDSDALE	2,445		120	120	5%
BELGIAN ANTICLINE*	10,153	1,100	1,930	3,030	30%
BOWERBANK	10,251		160	160	2%
BUENA VISTA	30,262	640	1,300	1,940	6%
CAL CANAL GAS	3,874	120	1,320	1,440	37%
CAPITOLA PARK	580	280	300	580	100%
CARNEROS CRK	974		40	40	4%
CAT CYN	26,681	20	20	40	<1%
CHAFFEE CYN	945		20	20	2%
CHICO MARTINEZ	1,501	420		420	28%
CIENAGA CYN	350	240	110	350	100%
COLES LEVEE NORTH	9,595	120		120	1%
COLES LEVEE SOUTH*	11,296	320	440	760	7%
CUYAMA SOUTH	6,229		2,240	2,240	36%
CYMRIC	14,271	1,930	1,100	3,030	21%
DEVILS DEN*	8,100	40	1,080	1,120	14%
EDISON	21,706		160	160	1%
ELK HILLS	46,223	240	800	1,040	2%
FILLMORE	3,158	40		40	1%
HOLSER	653		120	120	18%
HOPPER CYN	1,991	360	120	480	24%
KERN BLUFF	2,798		440	440	16%
KERN FRONT	12,199	400	1,460	1,860	15%
KERN RIVER	16,822	40	420	460	3%

KETTLEMAN MID DOME	6,412		2,720	2,720	42%
KETTLEMAN N DOME	23,214	3,840	1,820	5,660	24%
LOS ALAMOS	1,798	60		60	3%
LOST HILLS*	20,613	1,080	1,160	2,240	11%
LOST HILLS NW	5,673	320	2,440	2,760	49%
MCDONALD ANTICLINE	2,459		40	40	2%
MCKITTRICK	6,746	140		140	2%
MIDWAY SUNSET*	65,070	11,050	5,140	16,190	25%
MORALES CYN*	1,442	1,360	80	1,440	100%
MOUNT POSO*	28,600		10,040	10,040	35%
OJAI	34,177		200	200	1%
PIRU	2,836	190	250	440	16%
POSO CREEK*	19,878	400	3,800	4,200	21%
PYRAMID HILLS	6,894		200	200	3%
RAILROAD GAP	1,203	400		400	33%
RAMONA	1,064		160	160	15%
RINCON	5,140		80	80	2%
ROUND MOUNTAIN*	12,152	160	2,200	2,360	19%
RUSSELL RANCH	4,949	560	80	640	13%
SATICOY	1,709		20	20	1%
SEMITROPIC	16,274		160	160	10%
SESPE*	13,453	770	240	1,010	8%
SHIELLS CYN	3,152		160	160	5%
SOUTH MOUNTAIN	6,541	200	720	920	14%
TEJON NORTH	5,855		160	160	3%
TEMBLOR HILLS	640	320	320	640	100%
TEMESCAL	1,959		130	130	7%
TIMBER CYN	2,836		160	160	6%
TRICO GAS*	17,267		320	320	2%
WEST MOUNTAIN	814		160	160	20%
WHEELER RIDGE*	6,380	240	760	1,000	16%
TOTALS:	573,259	28,040	47,740	75,780	13%

Most APDs to be issued outside of the San Joaquin basin will probably be in the Sespe area and on USFS land (60-100). Other areas of high potential may see 2-10 APDs, primarily within the Ventura, Santa Maria, and Cuyama basins. The chances are unlikely that more than five APDs will be received in all areas of moderate potential. Areas of no/low potential will likely see up to 2 APDs. All totaled, between 950 and 1482 APDs are expected over the plan life (Table G-8).

AREA	MINIMUM	MAXIMUM
WESTERN SAN JOAQUIN VALLEY	800	1200
EASTERN SAN JOAQUIN VALLEY	60	100
SOUTH-CENTRAL S. JOAQUIN VALLEY	10	20
REMAINDER OF S. JOAQUIN VALLEY	20	40
SESPE	60	100
OTHER HIGH POTENTIAL AREAS IN VENTURA, SANTA MARIA, CUYAMA BASINS	2	10
ALL MODERATE POTENTIAL	0	5
ALL NO/LOW POTENTIAL	0	2
TOTALS (rounded)	950	1482

Table G-8. Areas and numbers of expected Applications for Permit to Drill over plan life.

Midway Sunset development. Based on historical trends and the proposed economic scenario, 75%-85% of all Federal oil and gas development activity over the plan life will occur within the administrative boundaries of the Midway Sunset field. Between 700-1000 APDs may be received within this one field in accordance with historic and future drilling trends.

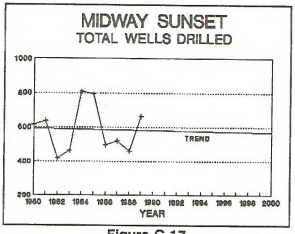


Figure G-17

Since 1980, between 400 and 800 wells per year have been drilled (Figure G-17) on all lands within Midway Sunset, with an 85% completion rate. These include infill, service, prospect, and injection wells. An overall average of 600 wells per year are expected over the plan life, or a total of 6,000-9,000 new wells for all lands within the field.

According to the Caliente Resource Area staff, historically 95%-100% of all approved APDs are drilled. For this exercise it is assumed that all APDs will eventually be drilled, yielding 700-1000 wells. Of these, 85% will be completed, or 600-850 wells. As shown on Table G-9, 70% of all wells in Midway Sunset are producers, and 30% injectors. Using that ratio, we can expect 420-600 producing wells, and 180-250 injection wells. These projected data are summarized in Table G-9.

Projected drilling activity for fields other than Midway Sunset. Assuming that all approved APDs are drilled, a total of 950-1480 Federal wells are projected to be drilled over the plan life (Table G-8). Of these, 700-1000 will be within Midway Sunset. Based on past development patterns, the remaining 250-500± Federal wells will be drilled within fields of the San Joaquin basin and the Sespe field (primarily USFS).

Based on APDs received since 1985 (Figure G-16), other fields most likely to have Federal wells drilled include (in decreasing order of importance): Mt. Poso, Poso Creek, Lost Hills, Wheeler Ridge, Devils Den, Belgian Anticline, South Coles Levee, Round Mountain, Morales Canyon, and Trico Gas. Little or no Federal drilling activity is expected for all other fields listed in Table G-7 as having public or split estate lands.

WELLS DRILLED (TYPE)	MINIMUM	MAXIMUM
TOTAL WELLS	6000	9000
TOTAL Federal WELLS	700	1000
Federal COMPLETIONS	600	850
Federal P&A*	100	150
Federal PRODUCING	420	600
Federal INJECTION	180	250

Table G-9. Projected activity for Midway Sunset over the plan life. *Plugged and abandoned dry wells only. 90-120 more wells/year will be abandoned from reaching their economic limit.

New field development. As discussed under new "Oil and Gas Exploration," only 20-80 Federal wildcat wells are expected to be drilled for all of the Caliente Resource Area (Table G-4). Assuming overall wildcat success ratios in the 1:15-1:20 range, a single new field discovery resulting from Federal drilling can statistically be expected over the plan life. However, new fields discovered on non-Federal lands, or on currently leased lands, may be large enough in areal extent to encompass BLM lands during the plan life.

New field reserve sizes will range from 1-10 MMBOE, with a median (most likely) size of 2-4 MMBOE. Fields in the 2-4 MMBOE size range have greatly varying areal extent and well numbers. The administrative areas range from 800 to over 16,000 acre with a median (most expected value) of 3000± acres (note: administrative areas can be much greater than proven areas). This statistically predicted acreage conforms well with fields discovered within the past 10 years, which range from 300-5000 acres.

Well counts range from one to over 100, with a median (most expected value) of 30 wells. Newly discovered fields are not expected to have oil gravities low enough to require the dense spacing of major fields (Table G-6).

Since 1980, no new fields have included public or split estate land within their administrative boundaries. Since 1970, however, four new fields have included 2140 acres of public or split estate land. This acreage is only 1% of the 240,000± acres of new field administrative area discovered over the past 20 years.

In all drilling, public and private, three to ten new field discoveries are projected over the plan life (see discussion under "New Field Discoveries"). This range (three to ten) includes any new fields projected to be discovered on BLM lands. With a median field size of 3,000 acres, the new fields will include 3,000-30,000 acres. Based on trends over the past 20 years, 1% (90-300 acres) of the administrative area of these new fields may be public or split estate lands. Further, if we optimistically assume that half the BLM acreage is within proven areas, then only 15-150 acres of BLM land may be developed in new fields over the plan life.

DEVELOPMENT ACTIVITY OVER PLAN LIFE	MINIMUM	LIKELY	MAXIMUM
FEDERAL DEVELOPMENT WELLS DRILLED WITHIN EXISTING FIELDS OTHER THAN MIDWAY SUNSET	250	350	500
TOTAL EXPECTED NEW FIELDS	3	6	10
EXPECTED NEW FIELD AREAS (ACRES)	1000	3000	18000
TOTAL EXPECTED NEW FIELD AREA (ACRES)	3000	18,000	30,000
EXPECTED NEW FIELD SIZES (MMBOE)	1	2-4	10
EXPECTED NEW FIELD WELL COUNT	1	30	>100
BLM LAND EXPECTED IN NEW FIELDS (ACRES)	30	180	300
BLM LAND EXPECTED IN PROVEN AREAS (ACRES)	15	90	150
BLM WELLS EXPECTED WITHIN NEW FIELDS	1	3	5

Table G-10. Projected development activity (well drilling) over the plan life for new fields expected to be discovered, and existing fields other than Midway Sunset.

New fields may be relatively deep (>8000 feet), requiring a relatively large well spacing of 10-40 acres, with 30 most likely. At 30 acres per well, only 1-5 BLM wells are expected in new fields over the plan life. Three BLM wells are most likely.

Development activities in new fields and in existing fields other than Midway Sunset are summarized in Figure G-17.

Cogeneration. About one half of all oil produced in California in 1990 was recovered using steam injection, either cyclic or steam flood. In addition to providing steam for thermally enhanced recovery, cogeneration plants provide electricity as a byproduct. Fields with the most generating capacity are shown in Figure G-18, Figure G-18. Kern River field is by far the largest user of cogeneration steam and, at 723 MW, the largest generator of electricity.

Cogeneration plants within the Caliente Resource Area have the capacity of producing 88.5% of the state's total capacity. The largest cogeneration plants are the Texaco Omar Hill and Sycamore facilities in Kern River, each rated at 300 MW. The

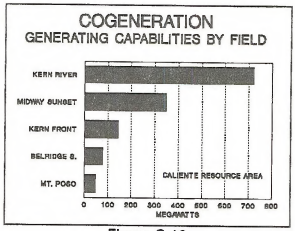


Figure G-18

next largest facility is the Arco plant at Midway Sunset with a capacity of 225 MW. Other fields having cogeneration projects include Belridge South, Cymric, Fruitvale, Jasmine, Kern Front, Lost Hills, McKittrick, Mt. Poso, Mountain View, and Poso Creek.

Most cogeneration plants are fueled by natural gas. A few use crude oil, casinghead gas, and coal. Over the plan life, all cogeneration projects will be converted to natural gas as the Mojave pipeline comes on line.

One of the most important aspects of cogeneration plants is that they replace traditional steam generation facilities. Steam generators tend to be highly pollutant, especially when oil or coal-fired. Over the past ten years, more than 145 steam generators have been replaced by relatively clean cogeneration plants. In Kern River alone, 102 steam generators, or 70% of the 145 total, have been replaced.

The clean nature of cogeneration plants has become an important factor behind their development. Environmental and economic issues are predicted to drive cogeneration development in the future. All cogeneration PROJECTS now in operation were licensed under the California Energy Commission's (CEC) "Title 1 Power Purchase Agreements." These agreements were issued for a short time during the Edmund G. Brown Jr. administration in an attempt to encourage alternative energy sources. According to sources within Kern County, the large scale cogeneration projects currently on line would not be possible without the tax and market incentives provided by the CEC. Most if not all plants originally licensed under the Title 1 Agreements have been built (Kern County data). The prospects for future large cogeneration projects rests with the ability of utility companies to provide attractive economic incentives under long term power contracts.

SURFACE DISTURBANCE FROM OIL AND GAS ACTIVITY

Expected drilling activity. Between 950 and 1500 development and in-field prospect wells are expected to be drilled on BLM land within the Caliente Resource Area over the plan life. Of these, 700-1000 will be drilled within the Midway Sunset field (Table G-9). Another 250-500 will be drilled in other fields of the San Joaquin basin. About 85% of the wells, 810-1300, will be completed, and 140-200 will be dry and abandoned (D&A) (another 90-120 existing BLM wells will reach their economic limit during the plan life and will become plugged and abandoned). Of the completed wells, 70%, or 570-910 will be producers, and 240-390 will be injectors. Another 20-80 wildcat wells will be drilled (Table G-4). Table G-11 summarizes these statistics.

Surface disturbance due to drilling. Most well drilling will occur within producing fields, which have been significantly disturbed over the years. Each well will require ½-1 acre of disturbance during drilling (data provided by BLM engineering staff) and a 20' by ¼-½ mile long road of ½-1 acre in area (CDOG). Total surface disturbance predicted for the drilling of each development well (non-wildcat) is 1-2 acres, or 950-3000 acres for BLM land within the Caliente Resource Area.

Of the 950-1500 development wells anticipated to be drilled, 810-1300 completions (production and injection wells) are expected (Table G-12). The drill pad areas of completed wells should require no further surface disturbance unless further completion activities (such as fracturing) are required. According to CDOG, each completed well requires a pipeline right of way of 12 feet by ¼-½ mile long, or ½-1 acres each, for a total of 400-1300 acres. Many of these can be run along access roads and not necessarily result in increased surface disturbance.

A one acre tank battery is needed for every 5-10 producing oil wells (CDOG). The 570-910 completions will require 60-180 tank farms, and 60-180 acres of tank farm disturbance. Tank batteries

FEDERAL WELLS	MINIMUM	MAXIMUM
TOTAL	950	1500
COMPLETED	810	1300
PRODUCING	570	910
INJECTION	240	390
D&A	140	200
WILDCAT	20	80

Table G-11. Expected drilling activity on BLM lands over the plan life. Historically, 75%-85% of all BLM drilling activity has been within Midway Sunset.

usually consist of separators and three tanks: a wash tank, a produced water tank, and a sales tank. Abandonments require no further surface disturbance.

Between 2-8 wildcat wells may be drilled on BLM land annually over the plan life, most of which will probably be dry and abandoned. Each well will require ½-1 acre of disturbance during drilling and a ¼-½ mile road, 20' in width. The drilling pad area and road amount to a total disturbance of 1-2 acres per well, or 2-16 acres total for the entire Resource Area per year. Surface disturbance projections are summarized in Table G-12.

Between 100-500 miles of seismic line are projected to be run on BLM land over the plan life. Most geophysical operations have short term, temporary effects on the surface, and some investigations are conducted from aircraft. However, one of the most useful geophysical techniques, reflection seismology, does have a temporary effect on the surface. In the Caliente Resource Area the reflection seismic technique will primarily be used for determining geologic structure related to mineral occurrence, hydrology with less extensive use for fault and earthquake hazard analysis. Most of the studies will be concentrated in the San Joaquin Valley adjacent to agricultural lands.

A large portion, approximately 35%, of the activity will occur along public roads and private roads and ways and will cause minor transitory effects. A larger portion than in the past will occur in fields, orchards, pastures, and vineyards, amounting to approximately 55% of the activity. Approximately 2% of the activity will occur on and adjacent to roads and ways through areas where the surface is otherwise in a more or less natural condition, and approximately 8% of seismic reflection studies will occur on other areas that are in a more or less natural condition.

Seismic reflection studies using truck mounted signal sources or truck mounted shot hole drills will disturb a strip averaging 10 ft wide with vehicular traffic and an adjacent strip averaging 5 ft in width will be disturbed by foot traffic. Drill sites, pull outs for recorder vehicles and vehicle passing areas will disturb areas equivalent to a strip 5 ft wide. Truck based activity will account for 95% of seismic study activity in the Caliente Resource Area. The remaining 5% of seismic activity will be in areas where the use of trucks is impractical. In such areas transportation will be by helicopter, all terrain vehicles, and by foot. The surface impacts of these transportation modes is slight to very slight, and the area of disturbance is equivalent to a strip 10 ft wide on average.

Most seismic exploration will be limited to the floor of San Joaquin Valley. BLM lands are very sparse in this area and are not likely to be severely impacted. Of the 100-500 miles of seismic lines run on BLM lands (Table G-12), less than 50% will be cross-country, affecting 45-225 acres.

SURFACE DISTURBING ACTIVITY	MINIMUM ACRES	MAXIMUM ACRES
DEVELOPMENT WELL DRILLING	950	3000
ADDITIONAL AREA FOR COMPLETED WELLS	400	1300
TANK FARMS	60	180
SEISMIC LINES	45	225
WILDCAT WELLS	20	160
TOTALS	1475	4865

Table G-12. Expected gross surface disturbance on BLM land over the plan life due to development and wildcat well drilling, completion, and supporting facilities.

Reclaimed lands. Drilling is a temporary operation with transient effects on the surface. If the well is dry and abandoned or plugged and abandoned, the land may be reclaimed. Net acres of surface disturbance take into account lands reclaimed. For plugged and abandoned wells, an additional amount of reclamation may be associated with abandoned producing facilities such as tank farms.

RECLAIMED LANDS	ABANDONMENTS ACRES	MINIMUM ACRES	MAXIMUM ACRES
Gross Disturbance		1,475	4,865
Dry & Abandoned Wells (1-2 Acres ea.)	140-200	-140	-400
Plugged & Abandoned Wells (1.5-3 Acres ea.)	90-120	-135	-360
Tank Farms (1 Acre ea.)	9-12	-9	-12
NET DISTURBANCE (ACRES) (Rounded)		1200	4,100

Table G-13. Net surface disturbance (from Table G-12) after accounting for lands reclaimed after abandonment of dry and uneconomic wells, and associated facilities.

Table G-13 shows net acres of surface disturbance, with the assumption that all lands originally disturbed will be reclaimed. Between 1200 and 4100 net acres of surface disturbance are expected after reclamation is accounted for. Compared to the total BLM acreage in the Caliente Resource Area this is a negligible amount of disturbance.

Socio-economic factors. No major changes in drilling, production, or exploration activities rates are projected over the plan life. Therefore, no significant changes are expected for the local economies, job bases, or other socio-economic factors.

REFERENCES

Beyer, L., 1988a. Summary of Geology and Petroleum Plays Used to Assess Undiscovered Recoverable Petroleum Resources of Sacramento Basin Province, California: United States Geological Survey Open File Report (USGS) OFR 88-450-0, 64 p.

Beyer, L., 1988b. Summary of Geology and Petroleum Plays Used to Assess Undiscovered Recoverable Petroleum Resources of Los Angeles Basin Province, California: USGS Open File Report OFR 88-450L, 62 p.

Beyer, L. and Bartow, J., 1987. Summary of Geology and Petroleum Plays Used to Assess Undiscovered Recoverable Petroleum Resources of San Joaquin Basin Province, California: USGS Open File Report OFR 88-450Z, 80 p.

Hager, R., 1989. Industry Executives Expect Stability for Oil, Gas Supply/Demand in 1990s: Oil and Gas Journal, Vol. 87, No. 52, December 25, 1989, p. 21.

MacKinnon, T., 1989. Oil in the California Monterey Formation: 28th International Geological Congress, Field Trip Guidebook T311.

Mast and others, 1989. Estimates of Undiscovered Conventional Oil and Gas Resources in the U.S. - A Part of the Nations Energy Endowment: USGS/MMS joint assessment paper.

Troxel, B., and Morton, P., 1962. Mines and Mineral Resources of Kern Co., CA, County Report 1, California Division of Mines and Geology.

Appendix G-3 Oil, Gas, & Geothermal Lease Stipulations

Introduction

Oil, gas, and geothermal leases are issued granting the lessee the right to extract either oil and gas, or geothermal resources. Section 6 of the oil & gas lease (shown in Appendix G-5) limits lease rights by requiring protection of other resources during development of oil and gas resources. Resource protection is a basic requirement on leases under all alternatives. If it is necessary to restrict development more than the standard lease contract specifies, stipulations are appended to the lease. The additional stipulations needed to protect resources and values are shown on the following pages, categorized by the type of restriction. These stipulations were evaluated for use on federal mineral estate on all private, city, county, and state lands, as well as lands whose surface is managed by the military or by the BLM. Section H of this appendix describes which stipulations would be applied to various alternatives. Under the Preferred Alternative stipulations for fluid mineral leasing required by the surface management agency will be considered by this plan to be minor constraints. All leases issued are subject to the pertinent allocations, stipulations, conditions of approval, and standard operating procedures identified in this plan. Every effort will be made to allow each lease to be developed, within the constraints of the stipulations and this plan.

The actual wording of these stipulations may be adjusted at the time of leasing to reflect the resource (oil & gas vs geothermal), future legislation, court decisions, or policy changes; however the protection standards in these stipulations would be maintained. Changes to the level of protection would require an amendment to the RMP/EIS.

All lands in the resource area fall into one of four fluid mineral management categories: Open Subject to Standard Terms and Conditions; Open Subject to Minor Constraints; Open Subject to No Surface Occupancy and Similar Major Constraints; and Closed to Leasing.

Leases issued within areas Open Subject to Standard Terms and Conditions have no added stipulations, although lease notices may be added. Protection from unnecessary and undue impacts, conformance with the RMP, and compliance with existing laws and regulations are still required. Movement of activities over 200 meters from their proposed location, and delays of greater than 60 days are not generally obligatory within this management class, but these limits may be exceeded if doing so would be necessary to meet any of the above requirements.

Leases issued in areas Subject to Minor Constraints may have Timing Limitation, Controlled Surface Use, or Special Administrative stipulations attached. They may also include lease notices. Taken together, they may not severely restrict development on any given lease. The lessee is still required to avoid unnecessary and undue impacts, conform to the RMP, and comply with existing laws and regulations.

Leases issued in areas Subject to Major Constraints may have No Surface Occupancy stipulations, timing limitation stipulations of more than 4 months, or any combination of other stipulations necessary for resource protection that, when taken together, could cumulatively result in a severe restriction of lease development. In many cases these stipulations are applied when minimal resource information is available, and are waived or modified following resource inventories. These stipulations are not expected to eliminate development. A given stipulation could be a major constraint in one area because of the major limitations it would place on operations, while the same stipulation could be only a minor constraint elsewhere, if the projected impact was small.

Lands Closed to Leasing fall into two categories. Non-discretionary closures are required by law, regulation, Secretarial

decision, or Executive order. An example would be a Wilderness Area. Discretionary closures are lands closed by allocations in this plan. They include areas of extreme resource sensitivity, where the level of mitigation required would effectively preclude any development.

The regulations covering modification and waiver of stipulations are found in the Code of Federal Regulation (CFR), Title 43, Subpart 3101.1-4. Waivers, exceptions, or modifications by the authorized officer will be subject to the same test used initially to justify the imposition of these stipulations. Generally a waiver, exception, or modification may be approved if the record shows that circumstances or relative resource values have changed, or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts, and that less restrictive stipulations will protect the public interest. Waivers, exceptions, or modifications can only be granted by the authorized officer, and must be supported with appropriate documentation. If the proposed waiver, modification, or exception is inconsistent with the plan, either the change will be disallowed, or the plan will be amended.

Exceptions are case-by-case exemptions from leasing stipulations and will only be granted by the authorized officer if the reason for the exception is consistent with this plan and the environmental analysis for the proposed change, and if the protective content of this stipulation is maintained. Even where no exception criterion is identified, exceptions may be considered. No public notice is required for exceptions to lease stipulations which conform to the plan. Other possible exceptions may be granted only upon plan amendment and public notification.

Modifications to stipulations are made if and when the authorized officer determines the stipulation is no longer effective as written. This situation occurs when new information (for example from a monitoring program, technical data, etc.) shows that the protective measure is unnecessarily restrictive. Modification of a stipulation requires the preparation of an environmental assessment to determine the potential impacts, as well as plan amendment or maintenance needs. If the modification is determined by the authorized officer to be substantial, a 30-day public notice will be given prior to modifying the lease stipulation.

Waiver means the complete elimination of a stipulation from a particular lease contract. A stipulation is waived by the authorized officer after preparation of an environmental assessment and a decision is made that the stipulation in question is no longer required for a particular lease. The decision to waive a substantial stipulation requires a plan amendment and a 30-day public notice period prior to waiver.

The following stipulations and notices reflect concerns within the Caliente Resource Area. The list includes all stipulations and notices considered. Not all would be used under any one alternative; their application under the Preferred Alternative is identified in Section H of this appendix.

A. No Surface Occupancy Stipulations

The No Surface Occupancy (NSO) stipulation is intended for use only when other stipulations are determined insufficient to adequately protect resource values. The NSO requirement prohibits use or occupancy of all or a portion of the land surface for exploration or development, in order to safeguard specified resources. These resources/values to be protected have also been considered for no leasing areas, but it is determined that No Surface Occupancy is adequate for resource/value protection.

The standard format of each No Surface Occupancy stipulation is presented below. The land descriptions will be obtained from Section H of Appendix G-3 and Chapter 3 of this resource management plan, as appropriate. The language of the "Explanation" for each lease-specific NSO stipulation is also provided below, and will be

inserted into the standard format with the specific resource information when the lease is prepared.

Serial No. ____

NO SURFACE OCCUPANCY STIPULATION

No Surface Occupancy or use is allowed on the lands described below (legal subdivision or other description):

Explanation: *(Insert appropriate text from below.)*

Any change to this stipulation will be made in accordance with the land use plan and the regulatory provisions for such changes.

Natural and Social Values

1. No Surface Occupancy will be allowed on the above parcels in order to protect ____(natural, scenic, recreational, and/or residential values), as specified in the Caliente Resource Management Plan (Pg __). No Surface Occupancy or surface disturbance, including geophysical and geothermal exploration activities, is allowed on these parcels. If directional drilling is proposed from adjacent private land, impacts from such activity upon the above resources must be considered and the proposed location may be altered or relocated based on that evaluation.

An exception or modification to this stipulation may be approved if it can be demonstrated to the satisfaction of the authorized officer that operations can be conducted without causing unacceptable impacts to the above values. Any decision to grant an exception or modification shall be predicated upon field inspection/inventories and the National Environmental Policy Act (NEPA) review process.

This stipulation may be waived by the authorized officer following NEPA review only upon a determination that the above values no longer exist within the leased lands.

Cultural Resources

2. The lands described above are available under No Surface Occupancy (NSO) due to the presence of unique or important archaeological resources/values. This action is necessary to comply with the Caliente Resource Management Plan (Pg __). This restriction applies to geophysical and geothermal exploration activities or any other surface disturbing activity for which authorization may be required. If directional drilling is proposed from adjacent private land, impacts from such activity upon the cultural resources must be considered. The proposed location may be altered or relocated based upon that evaluation.

An exception or modification to this stipulation may be approved following the National Environmental Policy Act (NEPA) review process, if it can be demonstrated to the satisfaction of the authorized officer that operations can be conducted without causing unacceptable impacts to cultural resources. Consultations under Section 106 of the National Historic Preservation Act, including inspection by staff or other approved specialists, may be required due to the probability of encountering archaeological sites. The lessee should be aware that the State Historic Preservation Office and Advisory Council may take as long as sixty days to review the proposal. All proposed surface disturbance activities must be approved in advance by the BLM's authorized officer.

Subsequent to the NEPA analysis and if inspection indicates insufficient or a lack of cultural resource values, the BLM will waive the NSO stipulation and process the Surface Use Plan of Operations (SUPO), using the Onshore Order #1 Procedures. Motorized vehicle use off established roads is not authorized on any lands within the federal lease area containing likely archaeological or cultural resources or values.

Compensation Areas*

3. The lands described above lie within a threatened and endangered species compensation area, and are leased subject to No Surface Occupancy (NSO) in order to protect those species, as specified in the Caliente Resource Management Plan (Pg __). If directional drilling is proposed from adjacent private land, impacts from such activity upon threatened or endangered species and their habitat must be considered and the proposed location may be altered or denied based upon that evaluation. The Surface Use Plan of Operations (SUPO) will first be submitted to the USF&WS for an Endangered Species Act formal Section 7 consultation. The lessee should be aware that the USF&WS has up to 135 days to render their Biological Opinion and that there are provisions for an additional 60 day extension. If the result of this consultation is a No Jeopardy Opinion from the USF&WS, then directional drilling may be allowed. The site of any proposed surface disturbing activities on private lands must be approved in advance by the authorized officer.

No exception criteria are identified for this stipulation. This stipulation may be waived if the species for which the land was acquired is removed from the list of threatened and endangered species.

**Compensation areas are lands that have been acquired by the BLM as compensation for impacts to threatened or endangered species (parcels are listed in Appendix C-6). Acquisition of these lands allows development to occur in other areas; development of these parcels would be inconsistent with reasons for obtaining them.*

National Security

4. The above lands are available subject to No Surface Occupancy (NSO) for reasons of national security, as specified in the Caliente Resource Management Plan (Pg __).

An exception or modification to this stipulation may be granted if it can be shown to the satisfaction of the authorized officer that the proposed operation will pose no risk to security. This stipulation may be waived if it can be demonstrated that these lands have no bearing on national security.

B. Timing Limitation Stipulations

The Timing Limitation (often called seasonal) stipulation prohibits fluid mineral exploration and development activities for time periods of less than one year. The dates and location(s) placed on the lease limiting activity are as specific as possible. A timing limitation stipulation is not necessary if the time limitation involves the prohibition of new surface disturbing operations for periods of less than 60 days (43 CFR 3101.1-2).

Timing limitations shorter than 60 days do not require a lease stipulation. The restriction is applied directly to the field operation approval as a Condition of Approval (see Appendix F). These concerns may be noted on the lease as Lease Notices. In those cases where two or more time restrictions combine or overlap to form a restriction of more than 60 days, the closure will be attached to the lease as a

stipulation, as a matter of Caliente Resource Area policy. Restrictions in excess of 4 months are considered major constraints, whereas shorter limitations are generally considered minor constraints. Additional restrictions of 60 days or less may still be added to field operations for protection of resources/values other than those stipulated.

The standard format of each Timing stipulation is presented below. The land descriptions will be obtained from Section H of Appendix G-3 and Chapter 3 of this resource management plan, as appropriate. The language of the "Explanation" for each lease-specific stipulation is also provided below, and will be inserted into the standard format with the specific resource information when the lease is prepared.

Serial No. ____

TIMING LIMITATION STIPULATION

No surface use is allowed during the specified time period on the lands described below. This stipulation does not apply to routine operation and maintenance of production facilities.

Time Period(s):

Legal subdivision or other description:

Explanation: *(Insert appropriate text from below.)*

Any changes to this stipulation will be made in accordance with the land use plan and the regulatory provisions for such changes.

Wildlife

1. Surface occupancy and development activities on the lands described above (which constitute __ % of the lease) are restricted during period(s) specified to protect (seasonally important wildlife)* habitat, as specified in the Caliente Resource Management Plan (Pg __). This seasonal restriction is necessary to (description of the need and goal for the stipulation) .

An exception or modification to this stipulation may be approved following National Environmental Policy Act (NEPA) review, if it can be demonstrated to the satisfaction of the authorized officer that: the Surface Use Plan of Operations (SUPO) area is not being utilized and is expected to remain in such a condition; or that impacts can be mitigated.

This stipulation may be waived by the authorized officer following National Environmental Policy Act (NEPA) review, only upon a determination that the seasonally identified habitat does not exist within the lease.

**Examples of seasonally restricted wildlife habitat include: big game winter range and migration routes, San Joaquin kit fox pupping areas, etc.*

Vegetation

2. Exploration, drilling, and construction activities on the lands described above (which constitute ___ % of the lease) are restricted during the specified period(s) to protect (plant status, name, and need for protection) , a BLM sensitive species, as specified in the Caliente Resource Management Plan (Pg __).

An exception or modification to this stipulation may be approved if it can be demonstrated to the satisfaction of the authorized officer that: the Surface Use Plan of Operations (SUPO) area does not contain the species in question; or that impacts can be mitigated. This may require that an inventory for threatened, endangered, or sensitive species be conducted in

and around the SUPO area. The lessee should be aware that the timing of the inventories is critical to granting the exception or modification, in that some species can only be inventoried during the spring or summer months of a favorable year. The information obtained in the inventories will be used in the BLM National Environmental Policy Act (NEPA) review process to analyze the impacts of the proposed operations on the T&E species.

This stipulation may be waived by the authorized officer following NEPA review, only upon a determination that neither the species nor any suitable habitat exist within the lease.

C. Controlled Surface Use Stipulations

The Controlled Surface Use (CSU) Stipulation is intended to be used when surface occupancy and use are generally allowed on all or portions of the lease area year-round, but because of special values or resource concerns, some aspects of lease activities must be strictly controlled. Activities that are incompatible with resource values may be prohibited from all or portions of the lease. The CSU stipulation is used to identify constraints on surface use or operations which may otherwise exceed the mitigation available under regulations, operating orders Section 6 of the standard lease terms. The CSU stipulation may be less restrictive than the NSO stipulation, which prohibits all occupancy and use on all or portions of a lease. It may be more or less restrictive than a Timing Stipulation, which may delay all activities for several months. The Controlled Surface Use stipulation may be used to delay certain activities, such as work-overs, while allowing for other uses. The use of this stipulation is limited to areas where restrictions or controls are necessary for specific types of activities rather than all activities.

The standard format of each Controlled Surface Use stipulation is presented below. The land descriptions will be obtained from Section H of Appendix G-3 and Chapter 3 of this resource management plan, as appropriate. The language of the "Constraints" and "Explanation" for each lease-specific stipulation is also provided below, and will be inserted into the standard format with the specific resource information when the lease is prepared.

Serial No. ____

CONTROLLED SURFACE USE STIPULATION

Surface occupancy or use is subject to the following special constraints on the lands described below:

Constraints:

Legal subdivision or other description:

Explanation: *(Insert appropriate text from below.)*

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.

Threatened & Endangered Species

1. The lands described above are within the range of _(species)_, which is _(proposed for listing, listed, or a C1 candidate)_ as a(n) _(threatened or endangered)_ species. In order to protect these T&E species and their habitats, as well as habitats of other candidate or State listed species as specified in the Caliente Resource Management Plan (Pg __), any surface disturbing activities, including the use of vehicle off existing roads, will not be allowed. This restriction also applies to geophysical activities and geothermal exploration, for which permits are required, and directional drilling proposals, which require Federal approval to drill from adjacent lands into the leased mineral estate.

There is a provision to this stipulation for a waiver, modification, or exception. This would allow for surface occupancy if the T&E species can be protected. The provision requires that an inventory for T&E species be conducted in and around the Surface Use Plan of Operations (SUPO) area. The lessee should be aware that the timing of the inventories is a critical part of this provision, in that some species can only be inventoried during the spring or summer months of the year. The lessee is hereby notified that the process will take longer than the normal 30 days and that surface activity approvals will be delayed. The information obtained in the inventories will be used in the BLM National Environmental Policy Act (NEPA) review process to analyze the wildlife impacts of the proposed operations on the T&E species.

If the inventories indicate that neither T&E species nor their habitats are present, then the BLM will waive the stipulation and process the Surface Use Plan of Operations (SUPO), using standard Onshore Order Number 1 procedures.

If the inventories indicate that the specified species are present, surface activities may be prohibited on portions or all of this lease and surrounding non-Federal lands. Should the BLM authorized officer determine that the mitigated SUPO could nonetheless be allowed, an exception or modification will be considered. The SUPO will first be submitted to the USF&WS for an Endangered Species Act formal Section 7 consultation. The lessee should be aware that the USF&WS has up to 135 days to render their Biological Opinion and that there are provisions for an additional 60 day extension. If the result of this consultation is a No Jeopardy Opinion from the USF&WS, then an exception to the stipulation may be granted, and the drilling application, with any necessary conditions of approval, will be approved by the BLM authorized officer. The conditions of approval, however, must include the terms and conditions and any compensation specified by the USF&WS No Jeopardy Opinion and address species compensation.

Biological Resources

2. The above lands are designated as "No Surface Occupancy" (NSO) to protect (highly valuable resources such as wildlife habitat, or other biologic assets)*, as specified in the Caliente Resource Management Plan (Pg __). No surface occupancy or surface disturbance, including geophysical and geothermal exploration activities, is allowed on these parcels. Analysis has shown that less restrictive stipulations are inadequate to protect these resources.

If directional drilling is proposed from adjacent private land, impacts from such activity upon the above resources must be considered. The proposed location may be altered or relocated based upon that evaluation. The site of any proposed surface disturbance activities must be inspected by staff or other approved specialists before work commences. All proposed surface disturbances must be approved in advance by the authorized officer.

An exception or modification to this stipulation may be approved if it can be demonstrated to the satisfaction of the authorized officer that operations can be conducted without causing unacceptable impacts to these resources. Any decision to grant an exception or modification shall be predicated upon field inspection/inventories and the National

Environmental Policy Act (NEPA) review process.

This stipulation may be waived by the authorized officer following NEPA review only upon a determination that the above resources do not exist within the lease.

**Examples of habitat that may be protected in this manner include: candidate and state listed species or their occupied or potential habitat, sensitive species, raptor nesting or roosting sites, and riparian and wetland areas.*

Riparian

3. No development may occur within portions of this lease that lie within 1/4 mile of springs, or riparian areas, encompassing ___% of the lease. The Caliente Resource Management Plan (Pg __) specified that this restriction applies to the lands described above in order to minimize wildlife disturbance at key water locations and to limit impacts to sensitive watersheds. Examples of activities that may be allowable in these areas include pipelines, powerlines, and roads. Other portions of this lease remain available for development, subject to the remaining stipulations.

An exception or modification to this stipulation may be approved following National Environmental Policy Act (NEPA) review, if it can be demonstrated to the satisfaction of the authorized officer that: disturbances can be adequately reclaimed; and that activities will have no impact on the riparian area or associated wildlife species.

This stipulation may be waived following NEPA review if it can be shown to the satisfaction of the authorized officer that there are no longer any viable water sources within this lease, or that wildlife are not dependent upon those that are present.

Visual Resources

4. The portions of this lease that are described above are within an area which has been assigned a Class II Visual Resource Management (VRM) classification by the Caliente Resource Management Plan (RMP). In order to preserve the Class II rating of the area, no surface operations will be allowed that conspicuously intrude upon the viewshed of the area. Relocation of the proposed operations, in order to utilize natural features as screening, or modification of the types of equipment to be installed, may be required prior to approval of a proposed action. The Caliente Resource Area Manager will only approve long term operations for which the visual contrast rating will remain within low to moderate levels, as described in the Caliente RMP (pp__).

An exception to this stipulation may be approved if it can be demonstrated to the satisfaction of the authorized officer that operations can be conducted without causing unacceptable long-term impacts to the visual resource class.

This stipulation may be waived or modified by the authorized officer if, as the result of other studies or RMP amendments, the visual rating of the area is changed from Class II.

D. Special Administrative Stipulations

These include two sets of stipulations. The first group are stipulations applied to leases on lands whose surface is managed by another agency, but whose minerals are managed by

the BLM. Stipulations proposed by the surface management agency will be used in addition to the stipulations identified in this plan. The level of protection specified in this plan will be met or exceeded in all cases. Stipulations 1 and 2 are generalized; stipulations 3a through 3d apply specifically to the leasing of oil and gas at Port Hueneme. These stipulations were identified by the Department of the Navy, and would be attached to any leases issued on that base.

The second type of stipulation is Number 4 below. It addresses drainage of oil and gas from Federal mineral estate. Drainage is often the result of pumping on private mineral estate. This stipulation could require development of a lease so that the government can receive revenue from the oil and gas, rather than let them be drained away to private lands. The stipulation may be applied where necessary anywhere in the Resource Area, subject to other stipulations identified in this section and management classifications shown in Appendix G-1.

Department of Defense

1. Department of Defense lands are subject to special constraints developed by the base commander. Conditions will be designed to protect the military mission of those lands, as well as natural resources and the safety of the lessee. These conditions may include NSO and/or timing limitations in excess of 60 days on all or part of the lease, when dictated by the base commander.

Other Government Lands

2. Those lands within this lease whose surface is administered by other Federal or State agencies, are subject to constraints developed by that agency to comply with the governing land use plan and NEPA analysis, as well as to avoid all unnecessary and undue degradation. The BLM must concur with the NEPA document of the surface management agency prior to approval of actions.

Port Hueneme

3a. The Navy will make the final determination where all drilling sites will be located.

3b. The lessee will bear all costs of changes made by the Navy in accommodating this oil and gas exploration/production effort.

3c. All necessary actions, as determined by the Navy and the BLM, will be taken at the lessee's expense, to mitigate any negative impact on the environment and local civilian community, caused by oil and gas exploration or production. This would include, but not be limited to, noise abatement, odor abatement, aesthetic quality of the surrounding area, and traffic congestion.

3d. The lessee will meet the requirements for and obtain all necessary licenses, permits, and authorizations from local, county, State, and Federal agencies.

Drainage

4. All or part of the lands contained in this lease are subject to potential drainage by well(s) located adjacent to this lease. The lessee shall be required within ___ months of lease issuance to submit to the Authorized Officer plans for protecting the lease from drainage. Compensatory royalty will be assessed effective with the expiration of this ___ month period if no plan is submitted and the Authorized Officer determines that drainage is occurring. The plan must include either an Application for Permit to Drill (APD) a protective well, or an application to communitize the lease so that it is allocated production from

a protective well off the lease. Either of these options may include obtaining a variance to State spacing for the area. In lieu of this plan, the lessee shall be required to demonstrate that a protective well would have little or no chance of encountering oil and gas in quantities sufficient to pay in excess the costs of drilling and operating the well. In the absence of either an acceptable plan for protecting the lease from drainage, an acceptable justification why a protective well would be uneconomical, or a technical evaluation demonstrating that no drainage is occurring, the lessee shall be obligated to pay compensatory royalty to the Minerals Management Service at a rate to be determined by the Authorized Officer.

E. Lease Notices

Lease Notices are attached to leases to transmit information at the time the lease is issued in order to assist the lessee in submitting acceptable plans of operation, or to assist in administration of leases. Lease Notices are attached to leases in the same manner as stipulations. However, there is an important distinction between Lease Notices and stipulations. Lease Notices do not involve new restrictions or requirements. Any requirements contained in a Lease Notice must be fully supported in either a law, regulations, standard lease terms, or onshore oil and gas orders. Guidance in the use of Lease Notices is found in BLM Manual 3101 and CFR 3101.1-3.

If a situation or condition is known to exist that could affect lease operations, there should be full disclosure at the time of lease issuance via a Lease Notice. If a lessee may be prevented from extracting oil and gas or geothermal resources through a prohibition mandated by a specific nondiscretionary statute, such as the Endangered Species Act, a stipulation may be used even though a Lease Notice would be sufficient. It is at the discretion of the authorized officer whether a situation is sufficiently sensitive to warrant the use of a lease stipulation.

The following notices will be attached to leases when appropriate. Additional notices may be developed and used to advise lessees of conditions that could affect their operations.

T&E Species

1. This lease is within the range of one or more plant or animal species that are either listed as threatened or endangered, or are proposed for such listing by the U.S. Fish and Wildlife Service. The site of any proposed surface disturbing activities must be inspected by staff specialists and approved by the Area Manager, Caliente Resource Area BLM, before work is begun. All viable habitat of these species must be identified during the preliminary environmental review of the lessee's proposed surface disturbing activity. Authorizations for activities on this lease may be delayed until completion of the necessary inventories for these species. The lessee should be aware that the timing of the inventories is critical, in that some species can only be inventoried during a brief period in the spring or summer months each year. Inventories on this lease will only be conducted during the optimal time period for the inventory of the target species. The Bureau of Land Management may need to initiate formal consultation with the U.S. Fish and Wildlife Service to determine whether or not the proposed activity would jeopardize the continued existence of these species (see Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536). The lessee should be aware that the USF&WS has up to 135 days to render their biological opinion, and that there are provisions for an additional 60 day extension. Offsite habitat protection or enhancement for wildlife or vegetation

(compensation) may be required by the USF&WS in one area, where comparable habitat is disturbed in another. The consultation may also result in some restrictions to the lessee's plan of development, or even disallow surface disturbance and occupancy in order to comply with this nondiscretionary statute.

2. All or a portion of this lease lies within an area determined by the USF&WS to be critical, essential, or otherwise important to the survival and recovery of the California condor. The Caliente Resource Management Plan has identified Standard Operating Procedures which, within the rights granted by your lease, may affect operations within condor range. The Bureau of Land Management may need to initiate formal consultation with the U.S. Fish and Wildlife Service to determine whether or not the proposed activity would jeopardize the continued existence of this species (see Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536). The lessee should be aware that the USF&WS has up to 135 days to render their biological opinion, and that there are provisions for an additional 60 day extension. Offsite habitat protection or enhancement for wildlife or vegetation (compensation) may be required by the USF&WS in one area, where comparable habitat is disturbed in another. The consultation may also result in some restrictions to the lessee's plan of development, or even disallow surface disturbance and occupancy in order to comply with this nondiscretionary statute.

Candidate Plants & Animals

3. This lease is or may be within the range of one or more Federal candidate plant or animal species. All proposed surface disturbing activities must be approved in advance by the Area Manager, Caliente Resource Area, BLM, and the proposed sites inspected by the staff or approved specialists. Authorizations for activities on this lease may be delayed until completion of the necessary inventories for these species. The lessee should be aware that the timing of the inventories is critical, in that some species can only be inventoried during a brief period in the spring or summer months each year. Inventories on this lease will only be conducted during the optimal time period for the inventory of the target species. Should any of these candidate species become proposed and subsequently listed as threatened or endangered, a conference or consultation with the U. S. Fish and Wildlife Service (USF&WS) may be required to comply with the Endangered Species Act. This process may result in some restrictions to the lessee's plan of development, or even require No Surface Occupancy in some parts of the lease in order to comply with this nondiscretionary statute. The lessee should be aware that the USF&WS has up to 135 days to render their biological opinion, and that there are provisions for an additional 60 day extension.

Raptors

4. This lease includes lands within the range of ____(raptor species)____. Movement of surface operations up to 1/2 mile or timing limitations up to six months may be required to avoid unnecessary and undue disturbance to sensitive raptor nest sites, foraging grounds, and wintering areas. This action is necessary for the protection of those species, as specified in the Caliente Resource Management Plan (Pg __).

Archaeology

5. All proposed surface disturbing

activities must be approved in advance by the Area Manager, Caliente Resource Area, BLM. The site of any proposed surface disturbing activities shall be inspected by the archaeologist, and other staff specialists before work is begun. Due to the probability of encountering archaeological sites, consultations under Section 106 of the National Historic Preservation Act may be required. No Surface Occupancy may be required in some parts of the lease in order to comply with nondiscretionary statutes.

Paleontological/Geological Resources

6. This lease contains (significant paleontological or geological resources, including but not limited to the following: sections, type locations, vertebrate fossil sites, etc) . All proposed surface disturbing activities must be approved in advance by the Area Manager, Caliente Resource Area, BLM. The site of any proposed surface disturbing activities must be inspected by the appropriate specialists, as determined by the authorized officer, prior to commencement of work. In conformance with Section 6 of this lease, the Surface Use Plan of Operations area may need to be moved to minimize damage to these resources.

Plan Conformance

7. All oil and gas exploration and development activities must conform to the Caliente Resource Management Plan (RMP). Additional review under the National Environmental Policy Act (NEPA) may be required for any given action. Mitigating measures may be derived from and shall conform with the RMP. Actions not conforming with the RMP will not be allowed.

Hydrogen Sulfide

8. In well fields with potential or known concentrations of H_2S, completion of a dispersion analysis may be required on all new wells. This will be done in order to provide data for the development or imposition of conditions of approval to protect wildlife, natural communities, air quality, and human safety, as specified in the Caliente Resource Management Plan (Pg __).

F. No Lease Areas

The 1920 Mineral Leasing Act subjects all federally owned mineral estate to fluid mineral leasing, with certain exceptions (see 43 CFR 3100.0-3). Exceptions include units of the National Park System; incorporated towns, cities and villages; wilderness study areas; wilderness areas; and others. BLM may make discretionary closures to leasing if resource/values are of sufficient importance and there is no way to mitigate impacts through a less stringent stipulation. Following is a list of those discretionary closures within the resource area.

Lands Closed to Oil & Gas Leasing (Discretionary Closures)

Alkali Sink ACEC	(Alt 2)
Blue Ridge ACEC	(Alt 2)
Blue Stone Ridge ACEC	(Alt 2)
CA Rocks & Islands ACEC	(Alts 1-5)
Carrizo Plain ACEC	(Alt 2)
Case Mtn ACEC	(Alt 2)
Chim Pk Lam Mdw ACEC	(Alt 2)
Cypress Mountain ACEC	(Alt 2)
Deer Spring ACEC	(Alt 2)
Erskine Creek ACEC	(Alts 2,5)
Frog Pond Mountain ACEC	(Alt 2)
Goose Lake ACEC	(Alt 2)
Granite Cave Cultural Site	(Alts 2,5)
Irish Hills ACEC	(Alts 2,3)
Ker 311 Cultural Site	(Alts 2,5)
Kernville Hotsprings ACEC	(Alt 2)
Keyesville ACEC	(Alt 2)

Lokern ACEC	(Alt 2)
North Fork Kaweah ACEC	(Alt 2)
Piute Cypress ACEC	(Alts 2,3,5)
Point Sal ACEC	(Alts 2,5)
Rusty Peak ACEC	(Alt 2)
Salinas River ACEC	(Alt 2)
Sand Horse ACEC	(Alt 2)
Soda Lake	(Alts 2,5)
Tierra Redonda ACEC	(Alt 2)
Walker Pass NHL	(Alts 2,5)
Wild & Scenic Rivers	(Alts 2,3,5)

G. Post-Lease Review

Drilling and related surface use programs, as well as other operations conducted under the terms of a Federal fluid minerals lease, must receive specific approval prior to on-the-ground implementation. Additional environmental analysis is therefore conducted as a part of the review and approval process. Site-specific requirements (Conditions of Approval, shown as mitigative measures in Appendix F) may be imposed at this time for the protection of wildlife and other resource values. These Conditions of Approval are discussed with, and provided to, the lessee/operator during the onsite inspection of the proposal.

H. Application of Stipulations

The following list identifies where various stipulations would be applied under the Preferred Alternative. Site specific notices are also listed where they are likely to be used. Stipulation C1, for threatened and endangered species, refers to candidates that are considered likely to be listed as well as those that are already Federally listed; these species are identified in Appendix B. Resources warranting stipulation A1 are either listed here, or in the case of ACECs, are described in the Chapter 3 ACEC allocations. All aspects of fluid mineral leasing are subject to the objectives, allocations, and standard operating procedures described within this plan.

San Nicholas Island (Military)
D1

Port Hueneme Naval Reservation
D1, E1, E5

Point Mugu Missile Range
D1, E1, E5

Vandenburg Air Force Base
C1, D1, E5

Camp Roberts
C1, D1, E5

Lemoore Naval Air Station
C1, D1, E5

Other Agency Lands (USFS,BIA, etc)
C1, D2, E5

Montana de Oro State Park
C1, D2, E5

Lopez Lake County Recreation Area
C1, D2, E5

Hungry Valley OHV Park
C1, D2, E5

Salinas River ACEC
C2, E3, E5, E7

Tierra Redonda ACEC
A1, A2, C1, C2, C4, E1, E6, E7

Frog Pond Mountain ACEC
A1, C1, C2, E1, E5, E7

Cypress Mountain ACEC
A1, A2, C1, C2, C4, E1, E7

Irish Hills
C2, E1, E5, E7

Rusty Peak
C2, E1, E5, E7

Carrizo Plain ACEC (excluding Soda Lake)
C1, C2, C4, E1, E4, E5, E6, E7

Lokern ACEC

C1, C2, E1, E5, E7

Alkali Sink ACEC
A1, A2, C1, C2, C4, E7

Blue Stone Ridge ACEC
C1, C2, E1, E5, E7

Goose Lake ACEC
A1, A2, C1, C2, C4, E7

Chico Martinez ACEC
C1, C2, E1, E5, E6, E7

Kettleman Hills ACEC
C1, C2, E1, E4, E5, E6, E7

Buena Vista Valley
C1, C2, E1, E5, E7

Bittercreek
C1, C2, E1, E5, E7

Blue Ridge ACEC
B2, C1, E1, E5, E6, E7

Case Mtn ACEC
C2, E1, E4, E5, E7

Walker Pass ACEC
B1, B2, C4, E1, E5, E7

Keyesville
B1, E5, E7

Chimney Peak Lamont Meadow
C3, C4, E3, E4, E5, E7

Kernville Hotsprings
B2, C1, E3, E5, E7

Horse Canyon / Sand Canyon ACEC
A1, A2, C1, E3, E6, E7

North Fk of the Kaweah River
C2, E3, E7

Threatened & Endangered Species Habitat
C1, E1

Compensation Areas
A3, C2, E4

T. 5 N., R. 31 W., Secs. 11 & 12, SBB&M
A4

Campgrounds
A1 (Recreation values)

Small Tract Patents
A1 (Residential areas)

Recreation & Public Purpose Grants
A1

Condor Habitat
E2

Critical Condor Habitat
C1

Wild & Scenic River Study Corridors
A1 (Recreational, Scenic values)

Appendix G-4 Oil & Gas Leasing And Development Process

This appendix presents a more detailed description of typical oil and gas exploration and development activities on public lands.

GEOPHYSICAL EXPLORATION

Surveys

Oil and gas can be discovered by either direct or indirect exploration methods. Direct exploration methods include the mapping of rock outcrops and oil seeps by geologists, often on foot; or more disruptive drilling and subsequent drill core analysis. Indirect methods include seismic, gravity,and magnetic surveys which can be used to delineate features which may contain oil and gas. The general term for the indirect methods is geophysical exploration, of the three methods, gravity or geomagnetic surveys will usually cause the least disturbance.

Gravity Surveys

Gravitational prospecting detects micro-variations in gravitational attractions caused by the differences in the density of various types of rock, through the use of an instrument known as a gravimeter. Data derived from gravity surveys are used to create general anomaly maps, from which faults and general structural trends can be interpreted. Survey measurements are taken at many points along a linear path with a gravimeter. The gravimeter is transported either by backpack, helicopter, or off-highway vehicle (OHV). Because gravity surveys can be conducted from the air or on foot, surface disturbance is not necessary. However, surface disturbance may occur if OHV use is permitted for the purpose of conducting the survey. Gravity surveys are generally not considered definitive due to the many data corrections required for topography and latitude, and the poor resolution of complex subsurface structures.

Geomagnetic Surveys

Magnetic prospecting is most commonly used for locating metallic bodies but is used to a limited extent in oil and gas exploration. Magnetic surveyors use an instrument called a magnetometer to detect small magnetic anomalies caused by mineral and lithologic variations in the earth's crust. Magnetic surveys can detect large trends or alignments in basement rocks and the approximate depth to those basement rocks, but in general magnetic surveys provide little specific data to aid in petroleum exploration. Again, many data corrections are required to obtain reliable information and maps generated from magnetic data lack resolution and are considered preliminary. Magnetometers vary greatly in size and complexity and in general most magnetic surveys are conducted from the air by suspending a magnetometer under an airplane. Magnetic surveys conducted on the ground are nearly identical to gravity surveys and surface disturbance is minimal to non-existent.

Seismic Surveys

A seismic survey is the most popular method currently utilized for locating subsurface structures which may contain oil and gases. Seismic prospecting is based on the fact that energy in the form of shock waves generated from a point source (or array of point sources) are reflected, and/or refracted(bent) to varying degrees and then travel at different speeds as they pass through different rock types. An analogy is the dropping of a stone in a quiet pool of water, where energy is seen as outward circles of waves emitting from the point source where the stone was dropped.

A seismic wave travels down into the earth. As the wave encounters rock layers of different composition, some of the waves change velocity and slow or speed up, and some of the energy is reflected back up to the ground surface where sensing devices (called geophones) receive and allow recording of energy variation.

After an initial land survey; geophones are

connected by a ground wire to the recording truck where in-coming data are stored on magnetic tape. The magnetic tape can be played back and processed through computers to give a presentation of the rock layers beneath the seismic array. The presentation can be printed onto a paper copy which has time/depth on the vertical axis and horizontal distance on the horizontal axis. The rock layers show up as dark and light bands of wave traces.

The time required for the original waves from the energy source to travel from the surface down to a given rock layer (or reflector) and then to be received back at the surface, is known as two-way time. To find the one-way time down to the rock layer, and then convert this to the depth to the rock layer, you must multiply the wave velocity received from the geophone by one-half the travel time recorded by the geophone. Time can then be converted to depth from surface down to the rock layer (or reflector) based on a table of average velocities through various types of rock layers. This velocity/depth estimation is a source of many errors in defining exploration targets.

The amount of surface damage a seismic survey may engender is contingent upon the type of energy source which is used. Energy sources can range from small explosive devices (either surface or shallow subsurface), to Vibriosis trucks, sometimes called thumper trucks. These trucks vertically pound or vibrate (a more side to side motion) to create a shock wave. Usually an array of four large trucks is used. Each truck has a large (about four square feet) pad located under the truck between the front and rear wheels. The pad is lowered to make contact with the ground and then the truck is raised up off the ground so the energy is from a point source. The vibrator pads on all the trucks are triggered electronically from the recording truck. Once information is sent down, reflected, received and then recorded, the truck array is moved forward a short distance and the process is repeated. Usually about 50 square feet of surface area is required to operate the equipment at each recording site. Access is by public roads and existing private roads and trails where possible. Graders and 'dozers' may be required to provide access in remote areas; off-road cross-country travel may be needed in some cases.

The two explosive methods require that explosive charges be detonated on the surface or in a shallow (100 to 200 feet) drill hole. Access is as above. Several trips a day are made along a seismic line; this allows for extra information needed in recording and processing data.

The surface charge method utilizes either a two and one-half or a five pound charge attached to a wooden lath about three feet above the ground surface. About 10 charges in a line are detonated at once. Because of limited shock wave penetration, this method is used where the target rocks are near the surface.

A typical drilling seismic survey may utilize a ten to fifteen member crew operating five to seven trucks. The vehicles used for a drilling program may include heavy truck-mounted drill rigs, track-mounted drill rigs, water trucks, a computer recording truck, and several pickup trucks for various crew members. In rugged topography, a portable drill may be carried in by helicopter.

Usually four to twelve holes are drilled per mile. The holes drilled are small in diameter and 100 to 200 feet deep. A fifty pound charge of explosives is placed in the hole, covered and detonated. Under normal conditions three to five miles of line can be 'shot' or completed in a day. Drilling water may be trucked in or obtained from private land owners.

In remote areas where there is little available subsurface data, a series of short seismic lines may be required to delineate subsurface exploration targets and to determine regional strike and dip.

Seismic lines maybe re-shot or re-aligned depending on the data received from the first

lines. Although alignment may be critical, spacing of the lines can often be changed a quarter mile on a one mile grid before the investigation programs will be significantly affected.

Geophysical Management (Permitting Process)

Geophysical operations may be conducted regardless of whether the land is leased or not. Geophysical operations on and off an oil and gas lease are reviewed by the Federal surface management agency.

The responsibilities of the geophysical operator and the BLM during geophysical operations are as follows:

1. Geophysical Operator: The operator is required to file, in person or by mail, a "Notice of Intent to Conduct Oil and Gas Exploration Operations" for all operations on public lands administered by BLM. Standard forms for this purpose are available in all BLM offices. The notice includes maps showing the location of the line and all the access routes, and must be filed in the BLM office before operations begin.

The operator is also required to be bonded. A copy of the bond or other evidence of satisfactory bonding must accompany the "Notice of Intent." Proper bonding can include a nationwide or statewide oil and gas bond with a rider for geophysical exploration or a $5,000 individual surety bond.

Once the Notice of Intent (NOI) has been filed, a prework conference or field inspection (if required) is conducted. Any special written instructions, orders, or approvals that may be given by the BLM at this pre-work conference must be compiled by the operator.

Surface-disturbing activities, such as bulldozing, require written approval by the BLM. Operators may be required to submit an archeological survey if surface disturbance is contemplated. The operator is required to comply with all applicable Federal, State, and local laws, such as the Federal Land Policy Management Act, the Endangered Species Act, and the National Historic Preservation acts.

Any changes in the original Notice of Intent must be submitted in writing to the BLM. Written approval must be secured before activities proceed. When operations, including rehabilitation work are completed, the operator is required to file a Notice of Completion of Geophysical Exploration.

2. BLM: The BLM is required to contact the operator immediately after the NOI is filed, and explain the terms of the Notice, including the operating procedures to be followed, all current laws, and all BLM administrative requirements. A pre-work conference or field inspection is conducted and written instructions or orders given to the operator. The BLM is responsible for the examination of resource values and the development of appropriate surface protection and reclamation measures. Final inspection following filing of the Notice of Completion is also required of the BLM.

OIL AND GAS LEASING

The BLM issues two types of oil and gas leases for oil and gas exploration and development on land and mineral estate owned or controlled by the Federal government: competitive and non-competitive. Competitive leases are issued for a five-year period, and non-competitive leases are issued for a 10-year period. Both types continue for as long thereafter as oil or gas are produced in paying quantities. The maximum competitive lease size is 2,560 acres in the lower 48 states, and 5,760 acres in Alaska. The maximum non-competitive lease size in all states is 10,240 acres.

Congress passed the Federal Onshore Oil and Gas Leasing Reform Act of 1987 to require all public lands that are available for oil and gas leasing to be offered first by competitive leasing. Non-competitive oil and gas leases may be issued only after the lands have been offered competitively at an oral auction and not

received any bids.

Competitive Leasing Process

Oral auctions of oil and gas leases are conducted by BLM State Offices at least quarterly when parcels are available. A Notice of Competitive Lease Sale, which lists lease parcels to be offered at the auction, is published by each BLM State Office at least 45 days before the auction is held. Lease stipulations applicable to each parcel are specified in the Sale Notice.

Lands included in the Sale Notice come primarily from two sources:

1. Existing leases that have expired, been terminated, or have been canceled or relinquished;

2. Parcels identified by either informal expressions of interest from the public, or by BLM for management reasons.

Each Sale Notice may be obtained for a nominal fee from the appropriate BLM State Office having jurisdiction over the lands.

All auctions are conducted with oral bidding. Bidders must attend the auction to obtain a competitive lease, or provide for someone to represent them. No sealed or mailed bids are accepted.

On the day of the auction, the successful bidder must submit a properly executed lease bid form which constitutes a legally binding lease offer, and pay a share of the sale costs ($75 per lease); a year's advance rental ($1.50 per acre); and not less than the $2.00 per acre minimum bonus. The balance of the bonus bid must be received within 10 working days of the auction. Those bidders who fail to submit the balance of the bonus on time forfeit their deposited money.

Non-Competitive Leasing Process

Non-competitive leases may be issued only for parcels that have been offered competitively and failed to receive a bid.

The lands in expired, terminated, relinquished or canceled leases are not available for re-leasing until they have been offered competitively in a Sale Notice for an auction, and cannot be filed on non-competitively for one year after expiration, termination, relinquishment, or cancellation.

Following an auction, all the lands that were offered competitively but received no bids will be available for non-competitive lease issuance for two years, beginning the first business day following the last day of the auction, as specified in the Sale Notice. Offers must be made on a BLM-approved form and must include payment of a $75.00 non-refundable filing fee, and the first year's advance rental of $1.50 per acre.

Those parcels not sold at oral auction become available noncompetitively beginning the first business day following the last day of the oral auction. All offers received on the first business day following an oral auction are considered to be simultaneously filed. The priority among multiple offers for the same parcel is determined by drawing. Offers received on subsequent days receive priority as of the time of filing, e.g., an offer filed at 10:15 a.m. will have priority over an offer filed at 10:16 a.m..

Drilling Permit Process

A Federal lessee or operator is governed by procedures set forth by the Onshore Oil and Gas Order No.1, "Approval of Operations on Onshore Federal and Indian Oil and Gas Leases", issued under 43 CFR 3164. Operating Order No. 1 lists the following as pertinent points to be followed by lessee or operator: Notice of Staking (NOS); Application for Permit to Drill (APD), which includes a multi-point surface use and operations plan; approval of subsequent operations; well abandonment; water well conversion; responsibilities on privately owned surface; and reports and activities required after well completion.

Notice of Staking

A Notice of Staking (NOS) can only be approved, subject to regulations, on leased lands. The Federal lessee or operating company selects a drill site based on subsurface geology, geophysics, topography, and economic considerations. Once the company makes the decision to drill, they must decide whether to submit a Notice of Staking (NOS) or apply directly for a permit to drill. The NOS is an outline of what the company intends to do, including a location map and sketched site plan.

The NOS is used to review any conflicts with known critical resource values. The BLM utilizes information contained in the NOS and obtained from the onsite inspection to develop stipulations to be incorporated into the APD. As a result of the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Reform Act of 1987), upon receipt of an NOS the operator/company name, well name, number, well location and a map showing the drill site must be posted in a public place in the Bureau Resource Area Office or the local surface management agency office for a minimum of 30 days prior to approving the APD.

Application for Permit to Drill (APD)

Applications for Permit to Drill can only be approved, subject to regulations, on leased lands. No surface activity is conducted in conjunction with drilling until the APD is approved by the BLM. The operator may or may not choose to submit an NOS; in either case, an Application for Permit to Drill must be submitted for approval. An APD consists of two main parts: the 13 point surface plan which describes any surface disturbance and is reviewed by BLM resource specialists, and the eight point plan which details the drilling program and is reviewed by a BLM petroleum engineer and geologist. For the APD option the onsite inspection is used to assess possible impacts and develop stipulations to minimize these impacts. The field inspection is held with the operators and any other interested party. The BLM must prepare any site specific environmental documentation required by the National Environmental Policy Act (NEPA), and develop mitigation measures necessary to protect any adversely affected resources.

When final approval is given by the BLM, the operator may commence construction and drilling operations. Approval of an APD is valid for one year. If construction does not begin within one year, the stipulations must be reviewed prior to approving another APD.

BLM approval is required for all wells drilled on Federal minerals regardless of surface ownership. For privately owned surfaces, it is the responsibility of the operator to obtain a surface owner agreement.

Issuance of Rights-of-Way

Rights-of-way are required for all facilities, pipelines, powerlines, and access roads that occupy Federally owned land outside the lease or unit boundary. Rights-of-ways may also be required of the operator for on-lease transportation facilities, or when a third party (someone other than the lessee/operator or the Federal government) constructs a facility or installation on or off the lease. The right-of-way is issued by BLM.

Drilling Phase

Site Preparation

Drilling and subsequent well operations can only be approved on leased lands subject to regulations.

Once the APD is approved, the operator may begin construction activities by moving construction equipment over existing roads to the point where the access roads begin. It is recommended that existing access roads be used whenever possible. When a site is chosen that necessitates the construction of an access road, the length will vary, but usually the shortest feasible route is selected to reduce the haul distance and construction costs. Environmental factors or a landowner's

wishes may dictate a longer route in some cases.

Depending on the type of terrain, equipment may include dozers (track-mounted and rubber tired), scrapers, and graders. Existing roads and trails often require improvement in places, and occasionally culverts and cattle guards are installed. In rough terrain the type of construction is sidecasting (using material taken from the cut portion of the road to construct the fill portion), where slightly less than one-half of the road bed is on a cut area and the remainder is on a fill area.

Roads are usually constructed with an 18 foot wide running surface (in relatively level terrain). Soil texture, steepness of the topography, and moisture conditions may dictate surfacing the access road in some places, but generally not for the entire length. The total acreage disturbed for each mile of access road constructed varies significantly with the steepness of the slope. The second phase is the construction of the drilling pad or platform. Well locations are constructed by one of three different general types of construction, but in every case, all soil material suitable for plant growth is first removed from areas to be disturbed and stockpiled in a designated area. Sites on flat terrain may require little more than removing the topsoil material and vegetation.

Drilling sites on ridge tops and hillsides are constructed by cutting and filling. The majority of the excess cut material is stockpiled in an area that will allow it to be easily recovered for rehabilitation. It is important to confine extra cut material in a stockpile rather than cast it down hillsides and drainage where it cannot be recovered for rehabilitation.

The amount of level surface required for safely assembling and operating a drilling rig varies with the type of rig, but averages 300 feet by 350 feet. At least 25 feet is normally required to be on an area of cut between the drill point and the outer edge of the drilling platform. This ensures that the foundation of the drilling derrick is on solid ground and prevents it from leaning or toppling due to settling of uncompacted soil.

In addition to the drilling platform, a mud or reserve pit is constructed, usually square or oblong, but sometimes in another shape to accommodate topography. Generally, the reserve pit is 8 to 12 feet deep, but may be deeper to compensate for smaller length and width or deeper drilling depths. The reserve pit is used to contain the drilling fluids and drill cuttings.

Depending on the relation of the location to natural drainage, it may be necessary to construct water bars or diversions. The size of the area disturbed for construction and the potential for successful revegetation depends largely on the steepness of the slope, soil type, climate, and degree of disturbance.

Drilling activities usually begin within a week or two after the location and access road have been constructed. The drilling rig and associated equipment are moved to the location and erected. Moving a drilling rig requires moving 10 to 25 truck loads of equipment over public highways and private roads. The derrick when erected is approximately 160 feet high. Water for drilling is hauled to the rig storage tanks or transported by surface pipeline. Water sources are usually rivers, wells, reservoirs, or private sources. Occasionally, water supply wells are drilled on or close to the site.

The operator must contact the appropriate county and obtain an Application for Permit to construct a well. The operator is required to use a Registered Driller licensed with the Health Department to drill the water supply well. A site inspection by the Health Department is also required.

When the BLM holds the water permits for surface water (stock ponds), BLM must also approve use of that water. When drilling commences, and as long as it progresses, water is continually transported to the rig location. Approximately 40,000 barrels or 1,680,000 gallons of water are required to drill an oil or gas well to the depth of 9,000 feet.

Drilling Operations (Rotary Drilling)

Starting to drill is called "spudding in" the well. Initially, drilling usually proceeds rapidly due to the unconsolidated nature of shallow formations. Drilling is accomplished by rotating special bits under pressure. While drilling, the rig derrick and associated hoisting equipment support the drill string's weight. The combination of rotary motion and weight on the bit causes rock to be chipped away at the bottom of the hole.

The rotary motion is created by a square or hexagonal rod, called a kelly, which fits through a square or hexagonal hole in a large turntable, called a rotary table. The rotary table sits on the drilling rig floor and as the hole advances, the kelly slides down through it. When the kelly has gone as deep as it can, it is raised, and a joint of drill pipe about 30 feet in length is attached in its place. The drill pipe is then lowered, the kelly is attached to the top of it, and drilling recommences. By adding more and more drill pipe, the hole can steadily penetrate deeper.

Drilling mud (which ranges in consistency from thin soup to fluid concrete) is circulated through the drill pipe to the bottom of the hole, through the bit, up the annulus of the well, through a screen which separates the rock chips, and into holding tanks from which it is pumped back into the well. The mud is maintained at a specific weight and thickness to cool the bit, reduce the drag of the drill pipe on the sides of the well hole, seal off any porous zones, contain formation fluids to prevent a blowout or loss of drilling fluid, and bring the rock chips to the surface for disposal.

Various additives are used in maintaining the drill mud at the appropriate viscosity and weight. Some of the additives are caustic, toxic, or acidic, but these hazardous additives are used in relatively small amounts during drilling operations and generally in very weak or low concentrations after being mixed with the drilling fluids. Special handling of tainted muds maybe necessary.

Eventually, the bit becomes worn and must be replaced. To change bits, the entire string of drill pipe must be pulled from the hole, in sections or stands usually about 60-90 feet long, until the bit is out. The bit is replaced and then the drill string is reassembled and lowered into the hole, section by section, and drilling is started again. The process of removing and reinserting the drilling string uses much of the time required in drilling.

Drilling operations are continuous, running 24 hours a day and 7 days a week. The crews usually work three 8-hour shifts or two 12-hour shifts a day. Pickups or cars are used for workers' transportation to and from the site.

Upon completion of drilling, the well is evaluated by several methods including, but not restricted to: sidewall samples, conventional coring, suites of various electric logs, drill stem tests, formation tests or other evaluation procedures. If results indicate commercial quantities, steel alloy casing is run to or near total depth and cemented in the hole. A "barefoot" completion may have the producing interval uncased or gravel packed with screen.

Cementing

Cementing is accomplished by pumping cement slurry down the drill string and up the outside of the casing in the annulus between casing and wells of the hole.

The cement is required to be circulated back to the surface or at least back to at least 100 feet into the next larger size casing. If oil or gas is not discovered in commercial quantities, the well is considered dry. The operator is then required to follow State and BLM policy procedures for plugging a dry hole. The drill site and access road are rehabilitated in accordance with the stipulations attached to the approved APD. Additional information follows regarding plugging and abandonment of wells.

Casing

Various types of casing are placed in the drilled hole to enhance hole integrity and to anchor both surface and subsurface drilling and production equipment. Casing is a string of steel alloy pipe which is comprised of many lengths (about 30 feet long) of individual pipe which are "screwed" together. Casing is cemented into the well to protect against fluids or rock entering the well bore.

Surface casing which is properly set and cemented also protects surface aquifers from being contaminated by drilling and production operations. Surface casing generally is set to a depth greater than the deepest fresh water aquifer which could reasonably be developed.

Production casing is perforated in the zone or structure containing the oil or gas. Equipment installed on the casing of a producing well consists of various valves, pressure regulators and artificial lift equipment used to control the flow of oil or gas to production facilities.

Pipeline quality gas at the wellhead requires a minimum of processing equipment. As the quality of gas decreases with the increased presence of water, dissolved solids, or liquid hydrocarbons, the amount of processing equipment increases. Water or liquid hydrocarbons in the gas are removed before the gas is mixed with other gas, usually at the wellhead. If liquid hydrocarbons are present, storage facilities (tank batteries) are required for the liquids until they accumulate in enough to be hauled out by large trucks.

Oil wells can be completed as flowing (those wells with sufficient reservoir pressure to raise the oil to the surface) or if the pressure is inadequate, they are completed with the installation of pumps, usually pumpjacks. Pumpjacks come in a variety of sizes, the larger ones reaching a height of 30 to 40 feet. Pumps are powered by internal combustion engines or electric motors. Fuel for the engines may be casinghead or propane.

California Division of Oil and Gas (CDOG) and BLM regulations (Notice to Lessee (NTL)-4A) prohibit the flaring or venting of natural gas. Exceptions allowed by the CDOG and BLM are allowed during testing of a new well, when the amount of gas produced with the oil is so small that pipeline construction is not practical, or in emergency situations. Otherwise, if a well produces both oil and gas, provisions for transporting the gas must be made before oil production can continue. The production equipment [heater-treater, holding facility for production (if any is present), and tank battery] are either placed on a portion of the location (on cut rather than fill) or located a short distance from the well head along the access road.

Oil and Gas Exploratory Units

A wildcat well is defined as "An exploratory well drilled for oil or gas on a geologic structure without sufficient information, or in an unproven territory, or in a horizon which has never produced or is not known to be productive in the general area, regardless of how good or poor prospects maybe." In 1991 as of Sept. 30, 1991, 6 wildcat APDs were filed involving Federal land, 2 west of Cuyama Valley and another on the west slope of Caliente Mountain, and 3 east of the San Andreas Fault in the southwest portion of the San Joaquin Valley near the town of Maricopa. The number of wildcat wells on Federal land is extremely variable and is based on world events, supply and demand to determine price, and recent discoveries of new pools or structures which lead oil companies to attempt to follow similar leads or trends.

Surface use in an oil or gas field may be affected by unitization of the leaseholds. In areas of Federally owned minerals, an exploratory unit is formed before a wildcat exploratory well is drilled. The boundary of the unit is based on geologic data. The developers of the unit can enter into an agreement to develop and operate as a unit, without regard to separate lease ownerships. Costs and benefits are allocated according to agreed-upon terms.

Unitization reduces the surface use requirements because all wells are operated as though on a single lease. Duplication of field processing facilities is minimized, because development and operations are planned and conducted by a single operator. Often powerlines are distributed throughout the unit and diesel engines are converted to electric motors. Unitization may also involve wider spacing than usual, resulting in fewer wells.

Plugging and Abandonment of Wells

When a well is no longer capable of producing in economic quantities and has no other use, the well is plugged and abandoned. The purpose of plugging and abandoning a well is to prevent fluid migration between zones, to protect subsurface resources from damage, and to restore the surface area. Each well has to be handled individually due to a variety of factors, including geology, well design limitations, well history and completion methods, and specific rehabilitation concerns. Therefore, only minimum requirements can be established, then modified for the individual well.

The first step in the plugging and abandoning process is the filing of the Notice of Intent to Abandon. This will be reviewed by both the surface management agency and the BLM Resource Area or District Office. The Notice of Intent to Abandon must be filed and approved prior to plugging an exhausted producer. Verbal instructions can be given for plugging active drilling operations, but a Notice of Intent to Abandon must be filed within 24 hours. If useable fresh water was encountered while the well was being drilled, the surface management agency will be allowed, if interested, to assume future responsibility for the well.

The operator's plan for securing the hole has the following minimum requirements: In open hole situations, cement plugs must extend at least 50 feet above the below zones with fluid which has the potential to migrate, zones of lost circulation (this type of zone may require an alternate method to isolate) and zones of potentially valuable minerals. Thick zones may be isolated using 100-foot plugs across the top and bottom of the zone.

In the absence of productive zones and minerals, long sections of open hole may be plugged with 150-foot plugs placed every 2,500 feet. In cased holes, cement plugs must be placed opposite perforations and extending 50 feet above and below, except where limited by plug back depth. In the absence of cement behind the casing, the BLM requires the operator to perforate and squeeze cement behind the pipe.

A permanent abandonment marker is required on all wells unless otherwise requested by the surface management agency. This marker pipe is usually at least four inches in diameter, 10 feet long, four feet above the ground and embedded in cement or welded to the top of the casing. The pipe must be capped with the well name, number, lease number, operator and location permanently inscribed, either by welded bead or plainly stamped with metal stamps that are clearly visible.

The surface management agency is responsible for establishing and approving methods for surface rehabilitation and determining when this rehabilitation has been satisfactorily accomplished. At this point, a Subsequent Report of Abandonment can be approved.

PROGRAM MANAGEMENT

Management Constraints on Oil and Gas Leasing and Development

During the leasing and development of Federal oil and gas, management constraints or restrictions can be applied to protect other resources such as wilderness or wildlife habitat. These constraints are designed to ensure that the impacts of oil and gas development on these other resources are avoided or reduced. Constraints can be applied at various times during the leasing and development process, and become more site-

specific and detailed as the process continues.

An area of Federal oil and gas can be classified as open or closed to leasing. Open areas can be leased and developed under standard lease terms and conditions, or constraints can be applied in the form of lease stipulations before the lease is put out for bid. When an operator is seeking to drill a well at a specific location on a lease, constraints can be applied in the form of Conditions of Approval (COAs) to the Application for a Permit to Drill (APD).

Three leasing determinations are made in this RMP /EIS:

1. Identification of lands open to leasing with Standard Lease Terms and Conditions;

2. Identification of lands open to Leasing and Development with Stipulations. Lease stipulations include the following:

a. Timing Limitation (Seasonal),

b. Controlled Surface Use, or

c. No Surface Occupancy;

3. Identification of lands closed to Leasing and Development, either:

a. Discretionarily, or

b. Nondiscretionarily.

This document also identifies Conditions of Approval (COAs) applied at the development (APD) stage (Appendix F)

The management constraints that close certain areas to leasing prohibit development in the areas where they are applied. A no surface occupancy designation allows development from adjacent parcels of land and may be waived if warranted by conditions. Most areas needing special stipulations do not extend over the whole tract being considered for lease; special restrictions apply only where specific areas need protection. Normally leases in areas that obviously cannot be directionally drilled or drained using current or expected future technology are recommended to be closed rather than specify an NSO stipulation which would be extremely difficult to waive or grant an exemption to. Although the management constraints that specify timing (seasonal) closures and controlled surface use would affect development, lease holders would still be able to develop their leases.

An environmental review is conducted for each Application for Permit to Drill (APD). The environmental documents utilized at the leasing stage are reviewed to determine whether or not any additional environmental documentation is required, and for establishing appropriate Conditions of Approval of the operator's submitted plan (43 CFR 3162.5-1 (a)). The occasional need for new Conditions of Approval results from situations where new information on resource values on a lease have been obtained. Should such circumstances arise, BLM can require reasonable and proper Conditions of Approval to protect these resource values. If lessees/operators do not agree to these conditions, they have a right of appeal through BLM or USFS appeals procedures.

BLM can require unitization whenever it is deemed necessary or proper to secure the necessary protection of the public interest, and to prescribe a plan which shall adequately protect the rights of all parties of interest, including the United States. There is no distinction between surface and subsurface resources when defining public interests. On lands with sensitive surface resource values, unitization can also be required to ensure orderly development of the areas of concern, for example by controlling the number of wells and attendant impacts associated with drilling. Unitization under some circumstances can help protect surface resource values while ensuring orderly development of leased mineral resource.

The lease stipulations included in this plan

may not be applied to any existing leases. The rights granted in these leases will not be modified. The Conditions of Approval included in the Mitigation Measures section (Appendix F) will be used where applicable and consistent with lease rights in an effort to meet the objectives of this plan. Efforts will be made to obtain voluntary compliance with new stipulations in those cases where Conditions of Approval are inadequate to protect the resources.

A lease suspension may be directed or consented to by the BLM when it is in the interest of conservation or in response to matters beyond the reasonable control of the lessee (such as unforeseen administrative delay).

Oil and Gas Resources Closed to Leasing (Nondiscretionarily)

The 1920 Mineral Leasing Act, as amended, authorizes the Secretary of the Interior to lease Federal oil and gas resources on all public domain and acquired lands. Federal minerals excluded from such leasing by legislation or secretarial policy include those underlying units of the National Park System; National Wildlife Refuges,; Indian reservations; incorporated cities, towns, and villages; and lands recommended for wilderness designation, wilderness study, or already within the National Wilderness Preservation System.

Other Surface Managing Agencies

This document addresses the impacts of Federal oil and gas leasing and development regardless of the surface ownership, except for Federal oil and gas underlying lands administered by the U.S. Department of Agriculture, Forest Service (USFS). Land use planning for oil and gas resources under lands administered by the USFS is addressed in USFS Land and Resource Management Plans. As a cooperating agency on USFS plans, the BLM generally provides information about current oil and gas leasing and development, oil and gas occurrence potential, and reasonably foreseeable development (RFD) projections to the USFS.

When Federal oil and gas are leased and developed on lands administered by other agencies, (e.g., the Forest Service, Corps of Engineers and Bureau of Reclamation), the BLM contacts the agency for consent to lease, specific surface protection lease stipulations, and mitigation requirements for field operations.

More restrictive stipulations can be added by the BLM. These stipulations apply to specific development and operational aspects of lease development that are not normally considered by other surface managing agencies.

Split Estate (Private Surface/Federal Minerals)

Management constraints prescribed for Federal oil and gas leasing and development on split estate apply only to mineral development activities permitted by the BLM. On such mineral development, the BLM provides surface and subsurface constraints that ensure the environment is protected. These constraints do not restrict the activities of private landowners.

Appendix G-5 Standard Terms & Conditions

The standard terms and conditions for oil and gas leasing are part of all Federal oil and gas leases, regardless of other considerations. These terms and conditions will automatically apply to all alternatives.

A lessee has the right to use as much of the leased lands as necessary to explore for, drill for, mine, extract, remove, and dispose of all of the leased resource in a leasehold, subject to: stipulations attached to the lease; restrictions deriving from specific, nondiscretionary statutes; and such reasonable measures as may be required by the Authorized Officer to minimize adverse impacts to other resource values, land uses, or users not addressed in the lease stipulations at the time operations are proposed.

To the extent consistent with lease rights granted, such reasonable measures may include, but are not limited to, modification of siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. At a minimum, measures shall be deemed consistent with basic lease rights granted provided that they do not: require relocation of proposed operations by more than 200 meters; require that operations be sited off the leasehold; or prohibit new surface disturbing operations for a period in excess of 60 days in any lease year.

The lease form is shown as Figure G-19.

FIGURE G-19

Form 3100-11*
(March 1984)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0002
Expires January 31, 1986

Serial No.

OFFER TO LEASE AND LEASE FOR OIL AND GAS

The undersigned (reverse) offers to lease all or any of the lands in item 2 that are available for lease pursuant to the Mineral Leasing Act of 1920 (30 U.S.C. 181 et seq.), the Mineral Leasing Act for Acquired Lands (30 U.S.C. 351-359), the Attorney General's Opinion of April 2, 1941 (40 OP. Atty. Gen. 41), or the

Read Instructions Before Completing

1. Name

Street

City, State, Zip Code

2. This offer/lease is for: (Check Only One) ☐ PUBLIC DOMAIN LANDS ☐ ACQUIRED LANDS (percent U.S. interest _____)

Surface managing agency if other than BLM: _____ Unit/Project _____

Legal description of land requested:

T.	R.	Meridian	State	County

Total acres applied for _____

Amount remitted: Filing fee $ _____ Rental fee $ _____ Total $ _____

DO NOT WRITE BELOW THIS LINE

3. Land included in lease:

T.	R.	Meridian	State	County

Total acres in lease _____

Rental retained $ _____

In accordance with the above offer, or the previously submitted simultaneous oil and gas lease application or competitive bid, this lease is issued granting the exclusive right to drill for, mine, extract, remove and dispose of all the oil and gas (except helium) in the lands described in item 3 together with the right to build and maintain necessary improvements thereupon for the term indicated below, subject to renewal or extension in accordance with the appropriate leasing authority. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and to regulations and formal orders hereafter promulgated when not inconsistent with lease rights granted or specific provisions of this lease.

Type and primary term of lease:

☐ Simultaneous noncompetitive lease (ten years)

☐ Regular noncompetitive lease (ten years)

☐ Competitive lease (five years)

☐ Other _____

THE UNITED STATES OF AMERICA

by _____ (Signing Officer)

(Title) (Date)

EFFECTIVE DATE OF LEASE _____

*(Formerly 3110-1, 2, 3, 3120-1, 7, 3130-4, 5, and 7)

4. (a) Undersigned certifies that (1) offeror is a citizen of the United States, an association of such citizens; a municipality; or a corporation organized under the laws of the United States or of any State or Territory thereof; (2) all parties holding an interest in the offer are in compliance with 43 CFR 3100 and the leasing authorities; (3) offeror's chargeable interests, direct and indirect, in either public domain or acquired lands do not exceed 200,000 acres in oil and gas options or 246,080 acres in leases in the same State, or 300,000 acres in lease and 300,000 acres in options in either leasing District in Alaska; and (4) offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located.

(b) Undersigned agrees that signature to this offer constitutes acceptance of this lease, including all terms, conditions, and stipulations of which offeror has been given notice, and any amendment or separate lease that may include any land described in this offer open to leasing at the time this offer was filed but omitted for any reason from this lease. The offeror further agrees that this offer cannot be withdrawn, either in whole or part, unless the withdrawal is received by the BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States.

This offer will be rejected and will afford offeror no priority if it is not properly completed and executed in accordance with the regulations, or if it is not accompanied by the required payments. 18 U.S.C. Sec. 1001 makes it a crime for any person knowingly and willfully to make to any Department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Duly executed this _____ day of _____, 19 ____. _____

(Signature of Lessee or Attorney-in-fact)

LEASE TERMS

Sec. 1. Rentals—Rentals shall be paid to proper office of lessor in advance of each lease year. Annual rental rates per acre or fraction thereof are:

(a) Simultaneous noncompetitive lease, $1.00 for the first 5 years, thereafter, $3.00;
(b) Regular noncompetitive lease, $1.00;
(c) Competitive lease, $2.00; or
(d) Other, see attachment.

If all or part of a noncompetitive leasehold is determined to be within a known geological structure or a favorable petroleum geological province, annual rental shall become $2.00, beginning with the lease year following notice of such determination. However, a lease that would otherwise be subject to rental of more than $2.00 shall continue to be subject to the higher rental.

If the lease or a portion thereof is committed to an approved cooperative or unit plan which includes a well capable of producing leased resources, and the plan contains a provision for allocation of production, royalties shall be paid on the production allocated to this lease. However, annual rentals shall continue to be due at the rate specified in (a), (b), (c), or (d) for those lands not within a participating area.

Failure to pay annual rental, if due, on or before the anniversary date of this lease (or next official working day if office is closed) shall automatically terminate this lease by operation of law. Rentals may be waived, reduced, or suspended by the Secretary upon a sufficient showing by lessee.

Sec. 2. Royalties—Royalties shall be paid to proper office of lessor. Royalties shall be computed in accordance with regulations on production removed or sold. Royalty rates are:

(a) Simultaneous noncompetitive lease, 12½%;
(b) Regular noncompetitive lease, 12½%;
(c) Competitive lease, see attachment; or
(d) Other, see attachment.

Lessor reserves the right to specify whether royalty is to be paid in value or in kind, and the right to establish reasonable minimum values on products after giving lessee notice and an opportunity to be heard. When paid in value, royalties shall be due and payable on the last day of the month following the month in which production occurred. When paid in kind, production shall be delivered, unless otherwise agreed to by lessee, in merchantable condition on the premises where produced without cost to lessor. Lessee shall not be required to hold such production in storage beyond the last day of the month following the month in which production occurred, nor shall lessee be held liable for loss or destruction of royalty oil or other products in storage from causes beyond the reasonable control of lessee.

Minimum royalty shall be due for any lease year after discovery in which royalty payments aggregate less than $1.00 per acre. Lessee shall pay such difference at end of lease year. This minimum royalty may be waived, suspended, or reduced, and the above royalty rates may be reduced, for all or portions of this lease if the Secretary determines that such action is necessary to encourage the greatest ultimate recovery of the leased resources, or is otherwise justified.

An interest charge shall be assessed on late royalty payments or underpayments in accordance with the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA) (96 Stat. 2447). Lessee shall be liable for royalty payments on oil and gas lost or wasted from a lease site when such loss or waste is due to negligence on the part of the operator, or due to failure to comply with any rule, regulation, order, or citation issued under FOGRMA or the leasing authority.

Sec. 3. Bonds—Lessee shall file and maintain any bond required under regulations.

Sec. 4. Diligence, rate of development, unitization, and drainage—Lessee shall exercise reasonable diligence in developing and producing, and shall prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves right to specify rates of development and production in the public interest and to require lessee to subscribe to a cooperative or unit plan, within 30 days of notice, if deemed necessary for proper development and operation of area, field, or pool embracing these leased lands. Lessee shall drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in amount determined by lessor.

Sec. 5. Documents, evidence, and inspection—Lessee shall file with proper office of lessor, not later than 30 days after effective date thereof, any contract or evidence of other arrangement for sale or disposal of production. At such times and in such form as lessor may prescribe, lessee shall furnish detailed statements showing amounts and quality of all products removed and sold, proceeds therefrom, and amount used for production purposes or unavoidably lost. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest, expenditures, and depreciation costs. In the form prescribed by lessor, lessee shall keep a daily drilling record, a log, information on well surveys and tests, and a record of subsurface investigations and furnish copies to lessor when required. Lessee shall keep open at all reasonable times for inspection by any authorized officer of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee shall maintain copies of all contracts, sales agreements, accounting records, and documentation such as billings, invoices, or similar documentation that supports costs claimed as manufacturing, preparation, and/or transportation costs. All such records shall be maintained in lessee's accounting offices for future audit by lessor. Lessee shall maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

During existence of this lease, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 6. Conduct of operations—Lessee shall conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee shall take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with lease rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-ways. Such uses shall be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee.

Prior to disturbing the surface of the leased lands, lessee shall contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short term special studies under guidelines provided by lessor. If in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee shall immediately contact lessor. Lessee shall cease any operations that would result in the destruction of such species or objects.

Sec. 7. Mining operations—To the extent that impacts from mining operations would be substantially different or greater than those associated with normal drilling operations, lessor reserves the right to deny approval of such operations.

Sec. 8. Extraction of helium—Lessor reserves the option of extracting or having extracted helium from gas production in a manner specified and by means provided by lessor at no expense or loss to lessee or owner of the gas. Lessee shall include in any contract or sale of gas the provisions of this section.

Sec. 9. Damages to property—Lessee shall pay lessor for damage to lessor's improvements, and shall save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 10. Protection of diverse interests and equal opportunity—Lessee shall: pay when due all taxes legally assessed and levied under laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States, maintain a safe working environment in accordance with standard industry practices; and take measures necessary to protect the health and safety of the public.

Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. If lessee operates a pipeline, or owns controlling interest in a pipeline or a company operating a pipeline, which may be operated accessible to oil derived from these leased lands, lessee shall comply with section 28 of the Mineral Leasing Act of 1920.

Lessee shall comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractors shall maintain segregated facilities.

Sec. 11. Transfer of lease interests and relinquishment of lease—As required by regulations, lessee shall file with lessor any assignment or other transfer of an interest in this lease. Lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which shall be effective as of the date of filing, subject to the continued obligation of the lessee and surety to pay all accrued rentals and royalties.

Sec. 12. Delivery of premises—At such time as all or portions of this lease are returned to lessor, lessee shall place affected wells in condition for suspension or abandonment, reclaim the land as specified by lessor and, within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells.

Sec. 13. Proceedings in case of default—If lessee fails to comply with any provisions of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation. Lessee shall also be subject to applicable provisions and penalties of FOGRMA (96 Stat. 2447). However, if this lease includes land known to contain valuable deposits of leased resources, it may be cancelled only by judicial proceedings. This provision shall not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver shall not prevent later cancellation for the same default occurring at any other time.

Sec. 14. Heirs and successors-in-interest—Each obligation of this lease shall extend to and be binding upon, and every benefit hereof shall inure to the heirs, executors, administrators, successors, beneficiaries, or assignees of the respective parties hereto.

Appendix G-6 Produced Water

Oil field drilling and production results in significant quantities of contaminated water. The contamination may range from ground walnut hulls to benzene and petroleum. Fluids produced during drilling are volumetrically less. Produced fluids (and associated solids) containing naturally occurring radioactive materials are monitored and disposed of according to State and Federal standards.

Drilling related wastes include oil based "muds" or water based "muds". These slurries or "muds" are used to cool the drill bit during drilling. They usually contain a mixture of water or oil as a liquid carrying agent, reactive solids such as bentonite or other clays, inert solids such as barite and chemical, physical additives. These wastes are contained in sumps (or reserve pits). The greatest quantity of fluid wastes is generated as produced water after drilling, during the pumping of hydrocarbons.

Enhancement of production often produces additional contaminants such as acetic acid and hydrofluoric acid. Other important fluid contaminants are the result of improperly abandoned or unplugged wells. All of these fluids potentially may find their way into aquifers used for human consumption. As a result, government and regulatory agencies have produced regulations regarding the potential degradation of aquifers.

The Dickey Act of 1949 required the establishment of the State Water Pollution Control Board to protect surface and ground water quality statewide. This limited previous practices of disposal of drilling fluids to areas above "unusable" ground water or in areas where ground water was deep below the disposal site. Surface disposal generally was to discharge fluids to unlined sumps and even stream channels near the wellhead. The western San Joaquin Valley fields continued the previous practice due to the poor ground water quality in that area.

The 1972 Federal Water Pollution Control Act Amendments and California's Porter-Cologne Water Quality Control Act of 1969 required local agencies to adopt and administer regional water quality plans. California Administrative Code, sections 1750-1780, set environmental regulations for oil and gas operations. These are administered by DOG in cooperation with other state regulatory agencies.

Section 1770 requires that waste water sumps not be located in natural drainage channels. It also restricts release of brines which might travel down drainages or percolate into ground water.

The Toxic Pits Clean-up Act of 1989 (TPCA) and California Administrative Code, Title 23, Subchapter 15 are the two primary regulatory documents used in California to regulate oil field waste water in sumps. Hazardous liquids are defined by the concentration of cyanides, metals, PCBs, halogenated organic compounds, pH, etc. Local Regional Water Quality Control Boards require the preparation of Hydrogeologic Assessment Reports for sumps to determine compliance to the TPCA.

Subchapter 15 sets disposal standards for waste management, type of containment, siting and geographic criteria. Waste management units such as sumps range from Class I (which would contain the most hazardous toxics) to Class II (non-hazardous toxics) to Class III (non-hazardous solid wastes such as household refuse). Most sumps range from Class I (rarely) to more commonly - Class II (contains chemicals at concentrations which exceed water quality standards, or could degrade water quality if released).

Ground water ranges from the surface to deeper than 600'. The ground water table mimics the ups and downs of the natural surface features of the San Joaquin Valley. Natural ground water quality is variable, ranging from poor quality on the west side (6,000 parts per million total dissolved solids) to good on the east side near the Kern River

Delta, where fresh water flushing takes place (the east side ground water has less than 500 parts per million).

Sumps are necessary for catchment storing and disposing of drilling fluids. As new regulations and technologies (including waste recycling of drilling fluids) come on line, mud tanks have begun to replace sumps. As a result, sumps will slowly be phased out. This will result in greater costs for disposal of wastes. Sumps which still remain will require fencing, covering with metal mesh, and larger containment berms. The berms will be needed in case of washovers in storms.

The BLM reviews all proposals for handling produced water on public lands, to ensure NEPA compliance. In cases where the State of California has primacy, the BLM reviews the State analysis to see that it meets Federal requirements.

The drought and increased urbanization have put greater demands on use of ground water. Agriculture and oil & gas development have historically added to increased salts and total dissolved solids, especially in shallow aquifers.

APPENDIX H - RECREATION

Appendix H-1 Route Designation Criteria

Appendix H-2 Visual Resource Management

Appendix H-3 Wild & Scenic River Eligibility and Preliminary Classification Report

Appendix H-1 Route Designation Criteria

Definitions

1. "Off-highway vehicle": Any motorized vehicle capable of, or designed for, travel on or immediately over land or other natural terrain, excluding:

   a. any military, fire, search and rescue, or law enforcement vehicle being used for emergency purposes
   b. any vehicle whose use is expressly approved by the authorized officer
   c. vehicles in official use
   d. any combat or combat support vehicle when used in times of national defense emergencies
   e. wheelchairs designed for physically-disabled persons
   f. All-terrain (mountain) bicycles which are mechanized, not motorized vehicles, and are considered separately from regulations regarding motorized vehicles.

2. "Official use": Use by an employee, agent, or designated representative of the federal government or one of its contractors, in the course of carrying out required duties.

3. "Trail": An unmaintained path, way or road consisting of one or more tracks, or a path maintained for the sole use of recreational foot, horse, pack animal or bicycle travel only.

4. "Closed area": An area where off-highway vehicle use is prohibited. Areas or trails are designated closed if closure to all vehicular use is necessary to protect resources, promote visitor safety, or reduce use conflicts. Use of vehicles in closed areas may be approved by the authorized officer for special purposes or legal requirements. Wilderness areas are closed.

5. "Open area" or "Open OHV area": An area where off-highway vehicle use is permitted both on and off roads. Open designations are used for intensive OHV use areas where there are no special restrictions or where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel.

6. "Limited to existing roads and trails": Off-highway vehicle use is permitted on all roads and trails in the area unless otherwise signed as closed. Off-highway vehicle use is not permitted on roads and trails that have been signed closed or physically closed through reclamation actions. Off-road travel will be permitted only under circumstances as outlined in "Management Strategies and Guidelines, 1" below.

7. "Limited to designated routes of travel": Off-highway vehicles are permitted only on routes that have been identified as open through the Bureau planning process. Routes not identified as open are closed to all motorized use, and may be signed as closed on the ground. Off-road travel is prohibited unless prior approval has been granted by the authorized officer.

8. "Limited to seasonal use": Off-highway vehicle use is regulated by the time or season of year that specific management prescriptions apply. (Other examples of limitations include: number or types of vehicles; permitted or licensed use only; and limitations if restrictions are necessary to meet resource management objectives, including certain competitive or intensive use areas which have special limitations).

9. "Off-road": Any off-highway vehicle use not on an existing or designated route of travel. This refers to all cross-country travel.

Route/Area Designation Criteria

The authorized officer shall designate all public lands as either open OHV areas, limited, or closed to OHVs. All designations shall be based upon resource protection, the promotion of the safety of all the users of the public lands, multiple use management, the need for access, and the minimization of conflicts among various uses of the public lands. Designation shall be in accordance with the following criteria:

1. Areas and trails shall be located to minimize damage to cultural and natural resources, including but not limited to the following: historical and archeological sites, soil, watershed, vegetation, air, scenic quality, and to prevent impairment of wilderness and wild and scenic river suitability. For example, sensitive areas might include but are not limited to riparian zones and meadows, wet or erodible soils, slopes more than 20%, areas prone to fugitive dust

emissions, VRM Class I (Wilderness Areas) or Class II (except on constructed roads). Routes currently causing a negative impact to sensitive resources in WSAs shall be closed to protect resources until Congress designates the area as Wilderness or returns the area to multiple use. USFS Trails Handbook 2309.18, sections 2.32a,b,c will be used as OHV trail standards, until such time BLM standards are developed.

2. Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.

3. Areas and trails shall be located to minimize conflicts between off-highway vehicle use and other existing or proposed uses, including recreation, on the same or neighboring public lands, and to ensure the compatibility of such uses (such as rifle ranges, children's play areas, or mines) with existing conditions in populated areas, taking into account noise, air pollution and other factors of the human environment. Designation will consider public safety, recognizing that challenge and risk are desirable factors for some OHV use. OHV use will be minimized or eliminated in areas of extreme natural or man-made hazards unless such hazards can be mitigated.

4. Areas and trails shall not be located in officially designated wilderness areas, primitive areas or river corridors designated as wild and scenic. Areas and trails may be located in natural areas only if the authorized officer determines that off-highway vehicle use in such locations will not adversely affect their natural, aesthetic, scenic, or other values for which such areas are established.

5. Designations must consider user access requirements for inventory, exploration, use supervision, maintenance, development, and extraction of public land resources as well as maintenance of facilities on public lands. Designations of open OHV areas must consider boundaries that are easily recognizable in order to manage the activity.

6. Designations must consider the access and use needs for areas and trails located within intermingled State and private land.

7. Designations must provide as wide and as balanced an approach to public land access as possible to protect public land resources values while at the same time meeting user access needs.

Management Strategies and Guidelines

1. Limited to existing roads or trails.

   All authorized public land users that hold a special authorization (i.e. grazing permittees, rights-of-way holders, mining claimants, etc) may drive off road if their authorization allows. Motorized vehicles must park within 50 feet of an existing road or trail to camp.

2. Limited to designated routes of travel.

   The alternative chosen in this RMP will specify which routes are designated. Popular areas (such as SRMAs) will have an activity plan and detailed map prepared. These plans and maps will be made available for public review. Motorized vehicles must avoid damaging resources at all times. Vehicles must be kept within previously disturbed areas and may travel no more than 50 feet from a designated route or trail when camping, unless otherwise posted. Specific approval by the authorized officer is required prior to any off road vehicle use other than camping, including valid permit and license holders. Off-road vehicle use for mineral activities is not authorized without prior filing of a notice of intent or approval of a plan of operations. Hunters may not use motorized vehicles off the designated routes to retrieve animals.

3. Organized events, timber harvesting, and land treatment projects will be handled on a case-by-case basis following NEPA analysis and at the discretion of the authorized officer.

4. Emergency services and/or law enforcement activities are exceptions to these policies.

Appendix H-2 Visual Resource Management

The Bureau of Land Management's Visual Resource Management (VRM) System provides a method for analyzing and managing visual resources on public lands. The basis of the VRM system is an inventory of visual resources. The components of the inventory are determinations of scenic quality, numbers of viewers, public attitudes regarding maintenance or modification of the scenery, the distance from which areas are viewed, and the existence of special considerations such as natural area or wilderness designations. All of these components are incorporated into a formula used to determine VRM classification ratings ranging from highly valued visual resource lands (VRM Class I and VRM Class II) to the least valued lands (VRM Class IV). The management objectives for each VRM class are:

VRM CLASS I

Visual contrast caused by land use, development, or construction activities should be within low levels similar to those of natural or ecological changes typical in a given area. This protective classification is applied to wilderness areas, wild and scenic river corridors, and other congressionally designated areas whose management is aimed at protecting their natural and scenic values.

VRM CLASS II

Visual contrast caused by land use, development, or construction activities should be within low to moderate levels. The changes should be relatively inconspicuous within their context.

VRM CLASS III

Visual contrast caused by management activities may be within moderate to high levels, but should remain subordinate to the characteristic landscape.

VRM CLASS IV

Visual contrast caused by management activities may be within high to extreme levels, and become a dominant feature within the context, but the design should incorporate elements found in the characteristic landscape.

The VRM system is utilized to determine appropriate visual design measures for proposed land uses. The degree of visual contrast between proposed projects and alternatives and the surrounding landscape are often compared as part of an overall environmental analysis of project proposals. As a result of this analysis, measures designed to reduce visual contrast or meet VRM class objectives are often incorporated into the design and construction methods of authorized land uses.

In practice the designation of VRM classes goes through a two step process. The inventory class (sometimes referred to as the interim visual management class) is the description of the visual resource as found in the field. This VRM class is reflected on the VRM maps in this document. The management class (or approved class) determines the visual management standards for the design and development of future projects and for rehabilitation of existing visual conditions or projects. In the Callente RMP the management class is the same as the inventory class except in the ACEC proposals, where it changes by alternative.

Appendix H-3 Wild and Scenic River Eligibility and Preliminary Classification Report

Introduction

The BLM is mandated to evaluate potential additions to the National Wild and Scenic Rivers System (NWSRS) during the Resource Management Plan (RMP) process by Section 5(d) of the Wild and Scenic Rivers Act (WSRA). NWSRS study guidelines are found in BLM Manual 8351, U.S. Departments of Agriculture and Interior guidelines published in Federal Register Vol. 7, No. 173, September 7, 1982, and in various BLM memoranda and policy statements.

The NWSRS study process has three distinct steps:

1. Determine what rivers or river segments are eligible for NWSRS designation.

2. Determine the potential classification of eligible river segments as wild, scenic, recreational, or any combination thereof.

3. Conduct a suitability study/legislative EIS to determine if the river segments are suitable for designation to the NWSRS.

Any river found to be eligible for inclusion in the NWSRS, will result in the associated BLM administered lands, within 1/4 mile of the river, being managed as if the river were an actual component of the NWSRS, until the suitability issue is resolved. If a river is found to be suitable for inclusion into the NWSRS, Congress must then pass legislation designating the river before it is added into the system. The State of California can also include the river as a State designated Wild and Scenic River and then apply to the Secretary of Interior for its inclusion into the NWSRS.

The following discussion provides information on how BLM considered streams and rivers for potential inclusion in the NWSRS. The first section portrays what efforts BLM used to identify study river corridors. The second section discusses eligibility criteria. The third section is a brief statement on how BLM addressed classification. Suitability determinations for inclusion in the NWSRS will only be completed when BLM develops activity plans for the management of high priority areas which encompass eligible corridors. Most of the BLM eligible study corridors contain small amounts of public lands. Suitability determinations for these corridors are deferred until BLM is able to consult the parties affected by these determinations (such as state agencies, local governments and private landowners).

The majority of this appendix contains a description of the values within each study river corridor followed by a conclusion on eligibility and recommendation for preliminary classification.

Identification

Prior to conducting any assessment for inclusion into the NWSRS, BLM established a list of study river corridors. BLM considered existing lists of such river corridors (i.e. suggestions from Friends of the River, the Nationwide Rivers Inventory, and Outstanding Rivers List), public input, and BLM staff nominations. Streams lacking public lands administered by BLM, streams with limited public ownership, and streams where information is insufficient to identify the lack of outstandingly remarkable values/free-flowing characteristics were not considered, or were dropped from analysis.

Eligibility

The WSRA states that to be eligible for inclusion in the NWSRS, a river or river segment must be free flowing and within its immediate environment, and must possess one or more outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values.

Free flowing, as defined in Section 16(b) of the WSRA, means "existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic river system shall not automatically bar its consideration for such inclusion." A river may flow between large impoundments and may qualify if conditions within the segment meet the eligibility criteria. There are many river segments already in the NWSRS which are downstream from or between major dams which severely regulate and diminish the flow of water in the effected segments. Some examples are: the Trinity River, Klamath River, and Tuolumne River in California, the Snake River in Idaho, and the Deschutes River in Oregon. Some of these rivers have had certain types of recreation enhanced by the water flow regulation of these dams. Examples of designated rivers with substantial diversions within the NWSRS segment, at the time of designation, include the North Fork Kern River and the upper Merced River, both in the California Sierra. There are no minimum flow requirements for inclusion into the NWSRS.

There are no minimum river segment lengths in the NWSRS. Congress has designated a segment as short as 4.25 miles. Considerations in defining study segments include substantial changes in land ownership, physical changes in the river and its surrounding land characteristics, and the type and amount of modern human modification.

The term "outstandingly remarkable" is not clearly defined in the WSRA; consequently the determination of what constitutes "outstandingly remarkable" is left to the professional judgement of the managing agencies and their staffs. Outstandingly remarkable means something which is more than ordinary when considered within a regional (Resource Area wide) context. In order for the river to be considered eligible in this study, the outstandingly remarkable value(s) must occur on BLM administered public lands within ¼ mile of the river.

Some examples of outstandingly remarkable values are as follows: scenic quality rating of "A" (BLM Manual 8400 Visual Resource Management-Scenic Quality); threatened or endangered species critical habitat; physiographical, biological, recreational, geological or ecological type locations (exemplar); and areas which are very natural or primitive in character, showing little, if any, evidence of modern human modification, and which may be very rugged and physically challenging to travel through.

In the following discussion of specific river study corridors, outstandingly remarkable characteristics are marked with an asterisk. Only characteristics on BLM administered lands are considered. Segments or corridors deemed ineligible in this study because of lack of outstandingly remarkable values on BLM administered lands, may have outstandingly remarkable values on non-BLM lands. In this instance, BLM defers to other appropriate organizations and agencies to (re)evaluate these segments and corridors. BLM will participate in any joint studies with the responsible agency(s), as appropriate.

Classification

To ensure that outstandingly remarkable values located on public lands are not adversely impacted by BLM authorizations, each eligible study corridor has been assigned preliminary classifications. These preliminary classifications are based on the classification definitions found in Section 2 (b) of the Wild and Scenic Rivers Act, Public Law 90-542 of October 2, 1968.

WILD RIVER AREA: Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

SCENIC RIVER AREA: Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

RECREATIONAL RIVER AREA: Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Water Quality Rating

The water quality rating was based on a comparison of physical, chemical, biological and bacteriological constituents with water quality standards and criteria.

GOOD = water quality suitable for all uses
FAIR = water quality suitable for all uses except domestic and recreational use
POOR = water quality unsuitable for domestic, recreational, wildlife and livestock use

SUMMARY OF WILD AND SCENIC RIVER ELIGIBILITY STUDY

River Corridor	Management Area	Eligibility Status	Outstanding Resource Values	Wild, Scenic or Recreational
Salinas	Coast	Eligible	Ecological Wildlife Visual	Scenic
Soda Lake	Valley	Eligible	Recreational Ecological Wildlife Flora Cultural Visual	Scenic
Bodfish	South Sierra	Non-eligible		
Caliente	South Sierra	Non-eligible		
Canebrake	South Sierra	Eligible	Ecological Wildlife Flora	Recreational
Chimney	South Sierra	Eligible	Wildlife Flora Visual	Wild and Recreational
Clear	South Sierra	Non-eligible		
Erskine	South Sierra	Non-eligible		
Kaweah East Fork	South Sierra	Eligible	Ecological Visual	Scenic
Middle Fork	South Sierra	Eligible	Floral Visual	Recreational
North Fork	South Sierra	Eligible	Wildlife Cultural Visual	Scenic and Recreational
South Fork	South Sierra	Non-eligible		
Long Valley	South Sierra	Non-eligible		

River Corridor	Management Area	Eligibility Status	Outstanding Resource Values	Wild, Scenic or Recreational
Lower Kern	South Sierra	Eligible	Recreational Wildlife Historic	Recreational
Pine	South Sierra	Non-eligible		
South Fork, Kern	South Sierra	Eligible	Ecological Wildlife Floral Prehistoric Historic Visual	Recreational
Salt	South Sierra	Non-eligible		
Spanish Needles	South Sierra	Eligible	Wildlife Floral Visual	Scenic and Recreational

NAME OF WATER COURSE: **Bodfish Creek**

GENERAL DESCRIPTION: Bodfish Creek, situated in Kern County, southwest of the resort town of Lake Isabella, is part of the Kern River watershed. Its upper reaches are in Sequoia National Forest and its lower reaches are privately-owned. The creek flows within the Piute-Cypress Wilderness Study Area, recommended unsuitable for wilderness by the BLM. It also occurs within the Monache-Walker Pass National Cooperative Land and Wildlife Management Area. Access along a dirt road is available but a locked gate blocks the public. Remains of unauthorized mining activity are being removed within the river corridor and the WSA.

LEGAL DESCRIPTION: T27S, R33E, M.D.M. Sec. 21, W 1/2, Sec. 20 NE 1/4.

TOTAL MILES/BLM MILES (approximately): 5 / 1.26

RECREATIONAL VALUES: The Creek receives low use due to lack of public access and its rocky, steep terrain. It is situated in the Piute-Cypress WSA, recommended non-suitable for wilderness.

ECOLOGICAL VALUES: Riparian vegetation grows intermittently along the entire segment. This stream generally flows year-round along the BLM segment. The largest of the Piute Cypress groves is located in the creek's watershed area.

WILDLIFE: Bodfish Creek flows from blue oak/digger pine through chaparral and pinyon pine-juniper and desert scrub. The sycamores, willows and coyote brush provide shelter and the basis for the food for many game and nongame species. They have a high potential for supporting willow flycatchers. Many neotropical migrating birds nest and migrate along the drainage.

SENSITIVE PLANT SPECIES: There are no documented locations of sensitive plant species within the river corridor.

CULTURAL/HISTORIC: Adjacent to BLM's segment of Bodfish Creek are remnant features of historic gold mining. These ruins are not formally recorded nor evaluated. Although mining was an important historic event in this region, there are no known sites of particular significance along the creek corridor. Bodfish Creek was named after George H. Bodfish who came into the Keyesville area in the late 1850's to mine for gold. He eventually settled in the canyon that is now named after him. Prehistorically, there are no recorded sites of significant value along the Creek's corridor. The region was primarily occupied by the Kawaiisu Indian culture.

PHYSIOGRAPHY/GEOLOGY: The northern portion of public lands is underlain by pre-Cretaceous metasedimentary rock; the southern half is underlain by Mesozoic Granitic Rocks.

MINERAL RESOURCES AND THEIR HISTORY: The early mining history of the mines on BLM administered land in Bodfish Canyon is unknown, but may date to the 1860s or 1870s, the same period that the mines in Keyesville and Erskine Creek were active. The Mondora (or Polka Dot) mine, located in the Bodfish Creek drainage in the NE¼ Sec. 21 was active in the 1890s. The foundation of a mill which stands in the NW¼ Sec. 21 presumably served this mine, and dates from this period. In the 1970s and early 1980s this mine was worked by Joe Freear, who constructed a mill about 500 feet south of the old mill site. There are other prospects in the NW¼ Sec. 21 and just a few tens of feet south of the USFS boundary in Sec. 28 along Bodfish Creek.

LAND USE: Public lands are adjacent to Sequoia National Forest and between the towns of Lake Isabella and Bodfish. Surrounding private lands include residential and rural residential parcels

ranging from one-half to two and one-half acres in size. There are several mining claims (as stated above) situated on the public lands along the river corridor. The 1.5 miles of Bodfish Creek on BLM land is currently unalloted and determined to be unsuitable for livestock grazing. The mouth of the drainage is fenced from private lands and there has never been a livestock drift problem. There are five rights-of-way on public land near this creek (CA 14324 for power line to Southern California Edison Co., CA 15778 for road to C. Mehalko, CA 14022 for road to D. Anderson, S 078122 for drainage easement and Highway 178, and S047108 for gaging station to Corps of Engineers).

SCENIC QUALITY: VRM Class III; Scenic Quality B

WATER QUALITY: Fair

ELIGIBILITY CONCLUSION: NON-ELIGIBLE

CLASSIFICATION: Scenic

NAME OF WATER COURSE: **Caliente Creek**

GENERAL DESCRIPTION: Caliente Creek flows from the foothills of the Piute Mountains, west to the Mountain View oilfields, in Kern County. Development along the BLM corridor consists of the Caliente Creek county road running adjacent to the creek, road crossings, check dams, houses and fences in site of the river, culverts, roadside pullouts, evidence of heavy livestock use, and trash.

LEGAL DESCRIPTION: T30S, R32E, M.D.M. Sec.24, NW 1/2; T30S, R33E, Sec. 21, N 1/2.

TOTAL MILES/BLM MILES (approximately): 32/1.4

RECREATIONAL VALUES: There are no known recreational uses on this creek except local use by private landowners.

ECOLOGICAL VALUES: BLM's segment is a low-elevation stream running over granitic rocks and gravel. The upper reaches of the creek on BLM land appear as a dry wash most of the year. There is a small man-made dam on the upper reach but otherwise the stream is free-flowing. Digger pine and blue oak are the dominant trees of the adjacent area. Occasional California sycamore, willow and cottonwood trees are found growing along the stream's riparian habitat. The corridor is subject to extreme flooding during periods of excessive rainfall.

WILDLIFE: Caliente Creek provides an important corridor between the valley grasslands and the mountains. The habitat is diverse, depending on the slope and geology. The streamside is vegetated by sycamore, cottonwood and willow. Occasionally, steep, rocky north-facing slopes provide habitat for the State listed and Federal candidate Tehachapi slender salamander. Two other Federal candidates for listing may occur along this portion of the stream, the California red-legged frog and the foothill yellow-legged frog. Both species generally require high quality perennial streams; few streams of this quality remain in California.

SENSITIVE PLANT SPECIES: There are no documented locations of any sensitive plant species within this river corridor.

CULTURAL/HISTORIC: At the confluence of Caliente Creek and Indian Creek is the small settlement

of Loraine. Paris, which was founded circa 1903, was renamed Loraine in 1912. Mining was the principal attraction to the area. Historically, the most noted mines in the area were the Barbarosa, Amalie, Gold Peak, Juan Dos, Zenda and the Barrosa. The region was prehistorically inhabited by the Kawaiisu culture. Although there are no recorded sites of significance known along the creek corridor on public land, the adjacent area is considered culturally sensitive for both historic and prehistoric resources.

PHYSIOGRAPHY/GEOLOGY AND MINING HISTORY: The Creek flows through a rocky, V-shaped canyon and narrow valley with steep walls. Technically, in this area Mesozoic granitic rocks and roof pendants of pre-Cretaceous metasedimentary rocks have been intruded by Tertiary rhyolite dikes and plugs. Gold and silver mines in the Loraine area yielded over $500,000 worth of ore. In addition there has been production of tungsten, antimony, lead, zinc and copper. Recent exploration by major mining companies has confirmed the existence of an economic gold ore body at the previously productive Zenda mine. New exploration has targeted the Tertiary rhyolite plugs southwest and southeast of Loraine. At this time no other ore bodies have been discovered.

Loraine itself has grown up on patented mining claims. However two historically productive mines, the Barbarosa and Amalie were never patented.

LAND USE: Surrounding private lands include rural residences, especially around the community of Loraine. Residences and abandoned cabins are visible from the river corridor. There are two BLM livestock grazing allotments on the scattered pieces of public land, and livestock grazing also occurs on the surrounding private lands. There are several mining claims on BLM lands around the Creek and abandoned mine tunnels. A mill site and mine can be seen although there are no signs of recent mining activity. Four rights-of-way (LA 087459 for power line to Southern California Edison Co., CA 10633 for road to D.J. Ryman, R 1860 for phone line to Pacific Bell, and CA 15784 for PCNST (BLM reservation). Powerlines, telephone lines, paved and gravel roads cross the creek and also parallel it. Debris from the floods of the early 1980s is evident all along the creek.

SCENIC QUALITY: VRM Class IV; Scenic Quality C

WATER QUALITY: Fair

ELIGIBILITY CONCLUSION: NON-ELIGIBLE

CLASSIFICATION: Recreational

NAME OF WATER COURSE: **Canebrake Creek**

GENERAL DESCRIPTION: Originating in the Scodie Mountains of Sequoia National Forest in Kern County, Canebrake Creek flows westward from Walker Pass (on Highway 178) to join the South Fork of the Kern River near the small town of Onyx. The entire BLM study corridor flows adjacent to Highway 178. Canebrake Creek's lower stretches enter a patchwork of BLM and private lands. The Creek flows in the Owens Peak WSA and the Monache-Walker Pass National Cooperative Land and Wildlife Management Area.

LEGAL DESCRIPTION: T26S, R37E, M.D.M., Sec. 17, SW 1/4; Sec. 18, SE 1/4 NE 1/4; Sec. 7, SE 1/4; T26S, R36E, M.D.M., Sec. 1, NE 1/4; T25S, R36E, M.D.M., Sec. 36, Sec. 25, SW 1/4,

SW1/4NW1/4; Sec. 21, NE 1/4.

TOTAL MILES/BLM MILES (approximately): 16 / 5.3

RECREATIONAL VALUES: The southwest boundary of the Owens Peak WSA reaches the Canebrake Creek study corridor. However, due to the closeness of Highway 178, this river corridor offers few opportunities for solitude. Limited recreation use is in the form of dispersed hunting and fishing, and birdwatching.

*ECOLOGICAL VALUES: This unique low volume perennial stream exhibits excellent riparian stream-side vegetation consisting of low-growing willow trees and intermittently-occurring cottonwood trees of varying sizes. Much of the river is sluggish in nature and runs over granitic alluvium. It affords excellent riparian wildlife habitat in areas occupied solely by Joshua trees.

*WILDLIFE: The Canebrake Creek is part of one of the most biologically diverse regions in the country. It flows through pinyon pine woodlands, Great Basin shrublands and Mojave Desert associations. The willow, cottonwood and ash are regionally important resting areas for neotropical migratory birds. **Willow Flycatchers,** State listed and Federal candidate, nest along this drainage. This area is an important zone of contact for many sibling species of plants and animals. Important research on hybridization and physiological adaptations are being initiated in this area.

*FLORA: The following species are known to occur on BLM land within the river corridor:
Needles buckwheat (Eriogonum breedlovei var. shevockii), a Federal category 3C candidate
Walker Pass milkvetch (Astragalus erterrae), a Federal category 2 candidate
Charlotte's phacelia (Phacelia nashiana), a California Native Plant Society List 1B species

CULTURAL/HISTORIC: Historically, this area is recognized for several important historical events. Joseph R. Walker, who led one of John C. Fremont's expeditions over Walker Pass in 1834 is formally honored as the first American to have entered Kern Valley. Walker's eastward expedition through Kern Valley to Walker Pass probably paralleled segments of Canebrake Creek. (Walker Pass, which is outside the Canebrake Creek corridor, is recognized as a National Historic Landmark). A remnant segment of the old stage run established circa 1870 trends from Canebrake Creek to Canebrake Flat. The historic road once continued to Onyx where it terminated. The portion of the historic road near Canebrake Creek is situated on private land. There are no known significant historic sites within the Canebrake Creek corridor. The area was ethnographically situated at the interface between the Tubatulabal and the Kawaiisu cultural groups. There are several known prehistoric sites along the Canebrake Creek corridor; however, no significant cultural properties have been determined. The Canebrake Creek cultural region is considered culturally sensitive.

PHYSIOGRAPHY/GEOLOGY/MINERALS: The Creek flows through both Mesozoic granitic rock and some metasedimentary rock. There is an active sand and gravel pit and an old Caltrans maintained borrow pit that was used for more than 20 years.

LAND USE: Public lands adjoin the Sequoia National Forest. This is a slowly expanding rural residential area with surrounding private lands containing rural residences between two and one-half to 40 acres in size. Several houses and cabins are visible from the river corridor. Four miles of Canebrake Creek flows through a grazing allotment which has cattle grazing from January 1 to June 30. The other mile of the creek flows through scattered tracts of public land in another allotment offering the same grazing period when annual forage is available. Livestock grazing also occurs on the surrounding private lands. Evidence of cattle grazing (such as a watering trough and fences) is visible along the river corridor. There are two permits for apiary sites and mining claims on adjacent

public lands. Eleven rights-of-way have been granted (CA 9471 for road to C. Allen, LA 0163327 for phone line to Contel, LA 0147800 for power line to Southern California Edison Co., CA 4663 for road to Kern County, CA 8256 for buried phone line to Contel, R 06784 for pipelines to E. Day, CA 22499 for visitor center/fire station (BLM reservation), CA 2953-55 for seismograph station to U.S.G.S., CA 8763 for PCNST & campground (BLM reservation), CA17660 for pipeline & collection box to L. Zabel, and CA 6973 for PCNST to Sequoia National Forest).

SCENIC QUALITY: VRM Class III; Scenic Quality B

WATER QUALITY: Fair

ELIGIBILITY CONCLUSION: ELIGIBLE (ecological, wildlife and flora - federal candidate T&E fauna and flora); NON-ELIGIBLE corridor due to potential for sand and gravel extraction: T25S, R36E, M.D.M., Sec. 21 SW 1/4 NE 1/4

CLASSIFICATION: Recreation

NAME OF WATER COURSE: **Chimney Creek**

GENERAL DESCRIPTION: Chimney Creek, located in both Tulare and Kern Counties, and in the Owens Peak and Rockhouse Basin Wilderness Study Areas, forms part of the South Fork of the Kern watershed. Most of the creek is located on BLM land which borders the Sequoia National Forest; several short corridors flow on private land. Parts of the study corridor are easily accessed by the Canebrake Road (a BLM maintained gravel road off Hwy. 178) and minor jeep roads. These dirt roads parallel and cross the creek in its upper reaches only. The lower section, at parts, is so steep and rocky that foot travel is difficult. The principal development, along the upper river corridor, is BLM's Chimney Creek Campground. A large house complex is readily seen in Lamont Meadows.

LEGAL DESCRIPTION: (main tributary) T24S, R37E, M.D.M., Sec. 5, N 1/2 SE 1/4; Sec. 17 (unsurveyed); Sec. 18, S 1/2; T24S, R36E, M.D.M., Sec. 24, E 1/2; Sec. 25, W 1/2, Sec. 33; Sec 34; Sec. 35; Sec. 36, NW 1/4 NW 1/4; T25S, R36E, M.D.M., Sec. 3; Sec. 10, NW 1/4; Sec. 9.

TOTAL MILES/BLM MILES (approximately): 19/16.9

RECREATIONAL VALUES: BLM's Chimney Creek campground is located on the upper reaches of Chimney Creek. The Creek forms part of the recreational and scenic attraction in the Owens and Rockhouse Basin WSAs for dispersed camping, hiking and hunting. Its rugged, rocky, steep banks contribute to the scenic beauty of these areas.

ECOLOGICAL VALUES: Chimney Creek is a typical low volume stream, originating from the southern end of the Kern Plateau at elevations below 9000 feet. Portions of this creek can become dry during the summer. Riparian vegetation generally consists of an intermittent thick ribbon of low-growing willow trees. Single leaf pinyon pine can be found throughout the watershed. The creek runs along a pristine and extremely rocky granitic bed when not crossing Chimney and Lamont meadows.

*WILDLIFE: This drainage is primarily vegetated by willow thickets and wet meadows, and passes through a great diversity of habitats. The headwaters are in high elevation with Jeffrey pine, and as the river drops in elevation, dominant species change from pinyon pine, California juniper, and finally

Joshua tree. The higher elevation stretches contain wet meadows which have meandering, narrow stream channels and overhanging grasses, and have served as examples for tours with other agencies and the public of what a stream in good condition should look like. The **willow flycatcher**, State threatened and Federal candidate, is dependent upon willow thickets in excellent condition as found along this creek. Few drainages have as large a population of flycatchers as this one. This habitat at higher elevations is extremely important for mule deer fawning, migrating and wintering. The long corridor of habitat is an excellent and important migration route for neotropical migrating birds heading to or from the Sierras or beyond. Some of these species nest along this river system as well.

SENSITIVE PLANT SPECIES: There is a high potential that Alkali mariposa lily, Calochortus striatus, occurs along BLM's river corridor. This plant, a Federal C2 candidate species, is known to occur nearby.

CULTURAL/HISTORIC: This area was ethnographically claimed by the Tubatulabal cultural group and is recognized for its high cultural resource sensitivity. There are a number of recorded prehistoric sites along the creek corridor. Although there are no known National Register cultural properties along the corridor, it is highly probable that significant prehistoric sites are present. There are no significant historic resources presently identified along the creek.

PHYSIOGRAPHY/GEOLOGY/MINERALS: The creek flows through mesozoic granitic rocks. There is potential for sand and gravel extraction in T.25 S., R.26E. M.D.M. Sec. 17. In the final analysis this sand and gravel area may be excluded from eligibility status.

LAND USE: Chimney Creek flows through four different grazing allotments which, in combination, are active throughout most of the year. They use both spring and surface waters. There are several mining claims on public lands surrounding the Creek and a land use permit for an apiary site. The slowly expanding rural residential area with surrounding private lands contains rural residences between two and one-half to forty acres in size. Ten rights-of-way exist on surrounding public lands (CA 20759 for road to Edgar Family Trust, R 4846 for BLM road and campground, CA 8763 for PCNST (BLM reservation), CA 27428 for BLM reservation, CA 3943 for BLM fire station, CA 17467 for communication site to U.S. Forest Service, CA 16180 for communication site to Cal Trans, CA 20927 for communication site to U.S. Air Force, R 1940 for communication site to BLM, CA 2953-53 for communication site to U.S. Geological Survey).

*SCENIC QUALITY: VRM Class II and III; Scenic Quality = A

WATER QUALITY: Poor

ELIGIBILITY CONCLUSION: ELIGIBLE (due to combination of federal candidate T&E fauna and possibly flora, and scenic values)

CLASSIFICATION: WILD (north of T24S, R36E, M.D.M. N1/2, Sec. 35); RECREATIONAL (from T24S, R36E, M.D.M. N1/2, Sec. 35 south to T25S, R36S, N1/2, Sec.9, which is approximately 1/4 mile above private property.)

NAME OF WATER COURSE: **Clear Creek**

GENERAL DESCRIPTION: Clear Creek drains Havilah Canyon in Kern County, from Sequoia National Forest's Piute and Breckenridge Mountains to the Lower Kern River. The majority of the main creek's corridor flows on Sequoia National Forest Service lands which are within one mile of public lands. The Creek is also within the Monache-Walker Pass National Cooperative Land and Wildlife Management Area. Surrounded by private land, the small BLM corridor along Clear Creek shows some visible historic mining operations, a paralleling footpath and the end of a jeep road.

LEGAL DESCRIPTION: Main tributary: T27S, R32E, M.D.M. Sec. 26, SW 1/4; Sec. 35, N 1/2 NW 1/4. Sections of tributaries: T27S, R32E, M.D.M. Sec. 25,26,33. T28S, R32E, M.D.M. Sec. 3,4,9, 10, 12.

TOTAL MILES/BLM MILES (approximately): 18 /.5 (main tributary)

RECREATIONAL VALUES: insignificant

ECOLOGICAL VALUES: Much of the segment qualifies as a ephemeral stream course, becoming active during wet periods. Typical watershed values of the general area are represented in this segment. The creek becomes perennial below Havilah Valley at a point where it enters a canyon which guides it to the Kern River. Only small pools of water are found in the creek bed during the summer months.

WILDLIFE: No data

SENSITIVE PLANT SPECIES: Piute Mountain navarretia, Navarretia setiloba, a Federal category 1 candidate for listing occurs along the river corridor and could occur within the BLM's corridor.

CULTURAL/HISTORIC: With the discovery of gold along Clear Creek in 1864, Havilah shortly became a bustling mining community. Havilah was Kern County's first county seat from 1866 to 1872 before it was moved to Bakersfield. Clear Creek Mining District was a flourishing mining district for more than 20 years. One of the most productive mines in the district was the Delphi which was also known as the McKeadney Mine. By the 1890's, Havilah was nearly a ghost town. Clear Creek is within the area which was ethnographically inhabited by the Kawaiisu Indian culture. The core areas occupied by the Kawaiisu were Walker Basin, Kelso Canyon, and Loraine area. There are no recorded cultural properties of significance on public land on either Clear Creek or its tributaries (Havilah is located on non-public land along a tributary of Clear Creek). However the area, pending intensive field inventory, is considered potentially a high sensitivity area for the occurrence of both historic and prehistoric resources.

PHYSIOGRAPHY/GEOLOGY: The Creek occurs at the contact of Mesozoic granitic rocks and pre-Cretaceous metasedimentary rocks.

MINERAL RESOURCES: The only surface administered by BLM on Clear Creek is the former "Marsh and Kennedy Millsite". This mill was owned by D. L. Reese and J. B. Haggin and served the mine they and George Hearst owned in the Havilah area. Two years from when the gold mines were discovered in 1864, there were ten mills processing gold ore. The principal period of activity lasted until 1880. Since then there has been intermittent mining. Also, several tungsten deposits have been located, some less than 1/4 mile from the BLM parcel on Clear Creek.

LAND USE: Livestock grazing occurs on adjacent private lands. Clear Creek itself is flowing across approximately .5 mile of unalloted public land. This land appears to be suitable and is grazed by livestock drifting over from private land. Two miles of a tributary crosses an allotment with a year long season while one and one-half mile of another tributary flows across an allotment which has a season

of use from July 1 to February 28. These tributaries flow only during and shortly after storms. Clear Creek occurs in a slowly expanding rural residential area with parcels ranging from two and one-half to forty acres in size. There are five rights-of-way (S 3858 for road to U.S. Forest Service, Sequoia NF, S 2175 for power line to Southern California Edison Co., CA 18946 for road to U&T Bolt, R 2849 for road to U.S. Forest Service, and S 3267 for power line to Kern River Co.).

SCENIC QUALITY: VRM Class III; Scenic Quality B

WATER QUALITY: Unknown

ELIGIBILITY CONCLUSION: NON-ELIGIBLE (note: due to possibility of Federal candidate T&E plant species which may occur, this river needs further evaluation in conjunction with a suitability study, which should be lead by USFS)

CLASSIFICATION: Scenic

NAME OF WATER COURSE: **East Fork of the Kaweah River**

GENERAL DESCRIPTION: The East Fork of the Kaweah River extends approximately 18 miles from Mineral King in Sequoia National Park to Highway 198, just north of the small town of Hammond in Tulare County. The BLM study corridor falls into the Milk Ranch parcel of the Milk Ranch/Case Mountain WSA, recommended unsuitable by the BLM for wilderness. Development along this corridor consists of the Oak Grove/Mineral King access road south of the river. There is limited evidence of human impact along the entire segment.

LEGAL DESCRIPTION: T17S, R29E., M.D.M., Sec. 37 Lots 6, 7, 8, SE1/4; Sec. 38 NE1/4SE1/4; Sec. 10 S1/2; Sec. 39 NE 1/4.

TOTAL MILES/BLM MILES: 10/ 2.4

RECREATIONAL VALUES: The study corridor is located in rocky, steep and rugged terrain with dense mixed chaparral which is difficult to access. Public lands are adjacent to the Milk Ranch/Case Mountain WSA and also the Sequoia National Park boundary. Most recreationists bypass this lower river section for the hiking and horseback riding opportunities offered in the Mineral King Valley, Sequoia National Park, located along the upper reaches of the E. Fork of the Kaweah. This BLM corridor would most likely be used by fishermen.

*ECOLOGICAL VALUES: This segment is an outstanding example of a pristine low elevation major drainage originating from the Mineral King segment of the southern Sierra Nevada Mountains. The stream channel is carved out of solid granite which takes on the appearance of a carved out chain of deep pools for much of the segment. Occasional riparian streamside vegetation grows intermittently along the segment. A rainbow trout fishery exists in this stream.

WILDLIFE: The diverse riparian community along the entire Kaweah River drainage system provides habitat for mule deer, black bear, gray fox, California and mountain quail, wood duck, common mergansers, many nongame species including Cooper's hawk and osprey, California species of special concern, and the bald eagle (in winter). This drainage provides a migratory network leading into the Sierra Nevada Mountains which is a crucial link to the higher altitudes, including Kings

Canyon/Sequoia National Park. This riparian system is an important migratory stopping place and corridor for declining neotropical migrating birds.

SENSITIVE PLANT SPECIES: Mouse buckwheat, Eriogonum nudum var. murinum, a Federal C-2 candidate for listing, likely occurs within this segment of the river corridor.

CULTURAL / HISTORIC: This stretch of the East Fork is ethnographically situated within the territory of a Western Mono group known as the Patwisha. Only one prehistoric site on public land is known along this segment of the river. The area is considered sensitive for the potential occurrence of both prehistoric and historic resources.

PHYSIOGRAPHY/GEOLOGY: The river flows through Mesozoic granitic rock.

LAND USES: Water power generation and production is an important industry in this area. Associated with a Federal Power Commission Order is a conduit, penstock and road in the vicinity of the river corridor. Approximately two miles of the East Fork flows through a grazing allotment and serves as one of its main water sources. Private lands include rural residences. There are three rights-of-way (CA 19079 for a road to S. Quade, S 072970 for a telephone line to Pacific Bell, and CA 20186 for a road to E. Casey). Developments which can be seen from the river corridor include houses and cabins, a flume, jeep road and the paved parallel road.

*SCENIC QUALITY: VRM Class III; Scenic Quality A

WATER QUALITY: Good

ELIGIBILITY CONCLUSION: ELIGIBLE (should be studied in conjunction with NPS. NPS should be lead agency to initiate study; has outstanding scenic and ecological values)

CLASSIFICATION: Scenic

NAME OF WATER COURSE: **Erskine Creek**

GENERAL DESCRIPTION: Erskine Creek, situated in Kern County, southwest of the resort town of Lake Isabella, is part of the Kern River watershed. Its upper reaches are in Sequoia National Forest and its lower reaches are privately-owned. The middle section of the creek is a checkerboard of both private and BLM land. It lies within the Monache-Walker Pass National Cooperative Land and Wildlife Management Area and Piute-Cypress Wilderness Study Area, which is determined to be unsuitable for wilderness by the BLM. Easy access to the creek is available on the gravel Erskine Creek Road which fords the creek nine times on BLM lands. Ample evidence of man-made alterations is present in the form of check dams, mining settlements, dams, road crossings, culverts, livestock trampling, primitive campsites and picnic areas, and trash.

LEGAL DESCRIPTION: T27S, R33E, M.D.M., Sec. 9, S 1/2; Sec. 16, NE 1/4; Sec. 15 NW 1/4; Sec. 23, N 1/2, SW 1/4; Sec. 24 NW 1/4 SW 1/4.

TOTAL MILES/BLM MILES (approximately): 11/2 plus .91 miles of tributary

RECREATIONAL VALUES: The creek is used during the warmer months for camping, fishing,

swimming, picnicking, and sunning. The gravel road alongside the creek is popular with mountain bicyclists and OHV users. OHV use tracks also extend upslope from the riverbed.

ECOLOGICAL VALUES: Riparian vegetation grows intermittently along the entire creek.

WILDLIFE: Erskine Creek flows from blue oak/digger pine through chaparral and pinyon pine-juniper and desert scrub. The sycamores, willows and coyote brush provide shelter and the basis for the food for many game and nongame species. The vegetation has a high potential for supporting willow flycatchers. Many neotropical migrating birds nest and migrate along the drainage.

SENSITIVE PLANT SPECIES: Alkali mariposa lily, Calochortus striatus, and Piute Mountains jewelflower, Streptanthus cordatus var. plutensis, both Federal C2 candidates for listing, may occur along Erskine Creek.

CULTURAL/HISTORIC: Erskine Creek was named after Michael Erskine, an early gold miner in the region. The dispersed occurrence of early mining features along the creek attest to the importance of this mining area which was established as the Valley View Mining District in the 1860's (see Mineral Resources section below). The area was primarily occupied, ethnographically, by the Kawaiisu cultural group. There are no recorded cultural properties along the public land segments of Erskine Creek. However, the area is considered to have potential for such resources.

PHYSIOGRAPHY/GEOLOGY: Outcrops of limestone are located near the creek and contain natural caves. Harrington's Cave, located approximately one-third mile above and south of the Creek, is 120 feet deep which makes it the deepest known cave in the area. Above Sec. 16 lies metavolcanic rocks of French Gulch, and quartzite of Fairview (with marble); below Sec. 16 lie Mesozoic granitic rocks. Three faults have been mapped as paralleling and within the Erskine Creek drainage. Travertine deposits sit astride one fault.

MINERAL RESOURCES AND THEIR HISTORY: The Valley View Mining District, established in 1865, encompassed the Erskine Creek Area. Little is known about mining in the early years, but in the mid-1870s four mining claims were located, which were then patented in the 1880s. Three of the claims are adjacent to BLM lands, north of the USFS boundary. One mine was developed for antimony, the other three for lode gold. Gold was also mined at the Illinois and Golden Bell mine immediately after the turn of the century. During the 1950s uranium was discovered and prospected southwest of Laura Peak and southeast of the mouth of Erskine Creek. At this same time tungsten was produced at the Unip mine 1/4 mile northwest of the junction of Willow Gulch and Erskine Creek. Tungsten was prospected at the Christmas Tree mine, near the head of Spring Gulch. In the 1970s the Rampors Company explored an area in the SE¼ of Sec. 9 and the SW¼ of Sec. 10, presumably for gold. During the 1980s Virgil Schuette prospected Erskine Creek for placer gold and garnets. In addition to the above named mines and prospects there are numerous unnamed prospects on public lands within the Erskine Creek drainage.

LAND USE: Public lands are adjacent to the Sequoia National Forest and between the towns of Lake Isabella and Bodfish. Surrounding private lands include residential and rural residential parcels ranging from one-half to two and one-half acres in size. There is no legal grazing allowed on the adjoining public lands. One mile of Erskine Creek is on land determined to be unsuitable and the remainder is on unalloted parcels which are suitable but closed to grazing. Drift of livestock from surrounding private lands has occurred in the past and evidence of grazing use on public lands is visible. There are two rights-of-ways (CA 5043 for road to J. Nemish and S078122 for Highway 178) and one land use permit for an aplary site.

SCENIC QUALITY: VRM Class III; Scenic Quality B

WATER QUALITY: Fair

ELIGIBILITY CONCLUSION: NON-ELIGIBLE

CLASSIFICATION: Recreational

NAME OF WATER COURSE: **Long Valley Watershed**

GENERAL DESCRIPTION: The Long Valley watershed, located in Tulare County, on the southern end of the Kern Plateau, has several tributaries which join to flow into the South Fork of the Kern River. Part of the drainage falls within the Rockhouse WSA and the Monache-Walker Pass National Cooperative Land and Wildlife Management Area. Public lands adjoin the Sequoia National Forest and Domeland Wilderness Area. BLM's Long Valley Campground and access road which parallels the stream (and fords it once), windmill, gabion dams, and fence spring are the only significant developments along the unnamed tributaries of the watershed. Cattle impact is high and trampling is evident in all but the inaccessible, rocky and steep reaches.

LEGAL DESCRIPTION: T24S,R36E, M.D.M. (portions of the North Half); T23S,R36E, M.D.M., Secs 31,32,33,34.

TOTAL MILES/BLM MILES (approximately): 15/13.5 (all tributaries)

RECREATIONAL VALUES: The watershed is used for dispersed bird and deer hunting, fishing, hiking and camping, picnicking, viewing wildlife and birdwatching. BLM's semi-developed Long Valley Campground is located along the Long Valley Creek and is a popular trailhead for access to the South Fork of the Kern River.

ECOLOGICAL VALUES: Long Valley watershed is a typical low volume stream originating from the southern end of the Kern Plateau at elevations below 9000 feet. Riparian vegetation generally consists of an intermittent thick ribbon of low-growing willow trees.

WILDLIFE: This drainage system flows through extensive pinyon pine woodlands and sagebrush/bitterbrush uplands. The streamside vegetation is dominated by grass and sedge, willow, pinyon pine and Jeffrey pine. The drainage system is an important breeding area, migratory corridor and wintering area for the Monache mule deer herd. The willow habitats are important nesting areas for the **willow flycatchers** as well as for other nesting and migratory neotropical migrating birds. The drainage is generally in good condition and provides a good example of this habitat in the southern Sierras. Nesting populations of the federal candidate, **California spotted owl**, are found within this drainage system.

SENSITIVE PLANT SPECIES: There are no documented locations of any sensitive plant species within this river corridor.

CULTURAL/HISTORIC: This area was ethnographically used primarily by the Tubatulabal Native American Indians. There are at least eight formally recorded prehistoric sites dispersed along the tributaries. While no formal evaluation of site(s) significance has been determined at present, it is

highly probable that National Register quality sites do occur within one-quarter mile of the tributaries. In regard to cultural sensitivity, the area is considered to have a high potential for prehistoric site occurrence. There are no recorded historic sites along the main and secondary tributaries on BLM public lands. However, several mining prospects of undetermined age can be found in the area.

PHYSIOGRAPHY/GEOLOGY: Much of the geological formation of the watershed is granitic, with some flow over metasedimentary rock. The two mining prospects are for gold and turquoise.

LAND USE: Public lands adjoin the Sequoia National Forest and Domeland Wilderness. Private lands include rural residences between two and one-half to forty acres in size. Livestock grazing occurs on the surrounding private land. The Long Valley Creek flows through an allotment which is grazed only during October 1 to November 30. Most livestock waters are spring sources at the upper reaches of the creek, or at the five artificial check dams constructed near the Long Valley Campground. This is in a slowly expanding rural residential area. There are several mining claims on BLM lands, a land use permit for an apiary site, and right-of-way R4846 for the BLM road and campground.

SCENIC QUALITY: VRM Class III; Scenic Quality B

WATER QUALITY: Poor

ELIGIBILITY CONCLUSION: NON-ELIGIBLE

CLASSIFICATION: Recreational

NAME OF WATER COURSE: **Lower Kern River**

GENERAL DESCRIPTION: The Lower Kern River runs from Isabella Dam (Hwy 178) in Kern County to the Kern Canyon mouth above Bakersfield. Although most of the Lower Kern is situated in the Sequoia National Forest, the upper BLM reaches form the study corridor. These reaches are situated within the Keyesville/Lower Kern Special Recreation Management Area (SRMA) and the Monache-Walker Pass National Cooperative Land and Wildlife Management Area. Access is available via a main dirt road within the SRMA. A four-lane freeway (Hwy 198) bridge crosses the Lower Kern River in T27S, R32E, M.D.M. Sec. 1 and then runs adjacent to it. The public lands are surrounded by Sequoia National Forest and private land.

LEGAL DESCRIPTION: T26S, R33E, M.D.M. Sec. 30, W 1/2; T26S, R32E, M.D.M. Sec. 25, SE 1/4, Sec. 36, E 1/2; T27S, R32E, M.D.M. Sec. 1, NE 1/4 SW 1/4; Sec. 12, NW 1/4

TOTAL MILES/BLM MILES (approximately): 32/3.5

*RECREATIONAL VALUES: Twenty miles out of the 32 mile Lower Kern River draw thousands of river runners each summer. Two designated launch sites, south of the Lake Isabella Main Dam at "BLM South" and "Keyesville Bridge" are on BLM public lands. At normal flows, BLM south to Sandy Flat (the third launch site, on USFS land) is mostly Class II water with a few short Class III rapids. From Keyesville Bridge put-in, brush and trees overhang the riverbed presenting a floater's special hazard. Rafting during normal water years runs from May to September, with waterflows dependent upon releases from Lake Isabella. Normal flows range from 800-3000 cubic feet per second (cfs).

Approximately 12,000 commercial and noncommercial rafters use the area each year. Dispersed camping, recreational mining, shooting, and OHV use occurs on the lands adjoining the river.

ECOLOGICAL VALUES: This segment is an example of a major watershed drainage originating from the Mt. Whitney area of the southern Sierra Nevada Mountains. Riparian vegetation grows intermittently along the boulder-laden channel which has been carved from granitic rock.

*WILDLIFE: The Lower Kern River flows through canyons and boulders. Due to the high relief surrounding the river, there is a significant element of solitude and lack of disturbance from the surrounding hillsides. The topographic relief allows for a tremendous variety of micro-climates which provide a wide diversity of habitats. Sycamores, cottonwoods and interior live oaks line the stream and are bordered by blue oak/digger pine, chaparral and annual grassland. Many game animals reside along the river and on the nearby slopes. Nongame animals reside and migrate through in great numbers. This river system is extremely important to neotropical migrating birds. This river is also habitat for sensitive species such as bald eagle in winter, California spotted owls year-round, and osprey in migration. Dippers nest along this stretch of the river and this may be the only place within Caliente Resource Area where this species nests on Bureau land. This is an important aquatic ecosystem and provides considerable recreational fishing. The fishery that exists on the river consists of rainbow trout, smallmouth bass and channel catfish.

Connected to the Lower Kern River is a large wet meadow complex east of highway 178 and west of the town of Lake Isabella. This meadow is the only natural wetland meadow downstream of Lake Isabella. Two wildlife candidate species are found here, **ferruginous hawk** and **tricolored blackbird**. This large wet meadow adds substantially to the biodiversity of the Isabella area. A willow patch at the southwest corner of the meadow and near the confluence of the Lower Kern may be occupied by **willow flycatchers**, a federal candidate and California threatened species. It is also the southern most nesting area for the Sierran population of the Savannah Sparrow.

SENSITIVE PLANT SPECIES: Alkali mariposa lily, Calochortus striatus, a Federal C2 candidate occurs along this river and may occur within the BLM corridor.

*CULTURAL/HISTORIC: Historically, the area was important for the exploitation of mineral resources. Initial settlement in the Keyesville area came with the discovery of gold by Richard M. Keyes in the mid-1850's. Remnants of this early mining is evident along the Lower Kern River corridor. Due to the poor condition of historic resources along the river corridor, there are no National Register quality sites remaining within or immediately adjoining the river. This segment of the river falls within the Tubatulabal Indian territory. The river has a high occurrence of prehistoric resources ranging from food processing to rock art sites. Although no prehistoric sites have been formally found eligible for the National Register on the public land segments, it is highly probable that sites of this quality are present on BLM. One known pictograph site on a segment of private land is considered significant.

PHYSIOGRAPHY/GEOLOGY: The Lower Kern River flows through Mesozoic granitic rocks. The Kern Canyon fault lies immediately to the southeast of the river. The fault is closest at the Bodfish off-ramp of SR 178 where the freeway is apparently built directly on the fault.

MINERAL RESOURCES and their HISTORY: After discovery of placer gold in the Kern River in the spring of 1854 a stampede of miners entered into the area. The rush continued through 1855 with a swarm of miners in this area. Soon hardrock gold was also discovered. By 1856 the first mill to recover gold was erected in Keyesville. Over the years a number of mills were erected along the Kern River to serve the mines of Keyesville, only to be destroyed by the floods of 1861-1962. In 1865 a

twenty stamp gold mill was built on the river. Numerous other mills were also built along the river, however their location is unknown. A stamp mill associated with the Mammoth Mine stood on the west bank of the river in the southeast quarter of Section 35 as late as 1959. Placer gold mining has continued along the river until the present. Gold continues to be recovered from gravel in the bed and banks of the river by various placer mining techniques.

LAND USE: Surrounding private lands contain rural residences with parcels ranging in size from one to five acres. Livestock grazing occurs on surrounding private lands, and BLM lands bordering the river in an allotment from March 1 to May 31. There are mining claims on nearby BLM lands, and ten rights-of-way (CA 5549 easement from U.S., S 20144 for power line to Southern California Edison Co., CA 16439 for road to E. Lunenschloss, CA 5043 for road to J. Nemish, S 47496 for power line to Southern California Edison Co., S 78122 for Highway 178 and drainage easement, S 47108 for gaging station to Corps of Engineers, CA 15778 for road to C. Mehalko, CA 14324 for power line to Southern California Edison Co., and CA 14022 for road to D. Anderson).

SCENIC QUALITY: VRM Class II; Scenic Quality B+

WATER QUALITY: Fair

ELIGIBILITY CONCLUSION: ELIGIBLE (due to combination of recreational, wildlife, historic and possibly plant resources). Note: The USFS studied this river corridor and concluded "non-eligibility". However, this conclusion is being reevaluated in their suitability study.

CLASSIFICATION: Recreational

NAME OF WATER COURSE: **Middle Fork of the Kaweah River**

GENERAL DESCRIPTION: The Middle Fork of the Kaweah River extends from the confluence of several creeks in Sequoia National Park near Redwood Meadows to the resort community of Three Rivers in Tulare County. Most of the land which the river crosses is within Sequoia National Park or is privately-owned. The BLM study corridor flows next to the main access road, Hwy. 198, to Sequoia National Park, and adjacent to the Milk Ranch/Case Mountain WSA.

LEGAL DESCRIPTION: T17S, R29E, M.D.M. Sec. 37.

TOTAL MILES/BLM MILES: 10 miles / 1000 feet

RECREATIONAL VALUES: Within Sequoia National Park there is a popular hiking trail along their corridor of the Middle Fork of the Kaweah. However, the BLM section is so short that recreational usage is not documented. The river across BLM lands flows so close to Highway 178 that solitude is limited, but access for fishing is possible.

ECOLOGICAL VALUES: This segment is a typical example of a low elevation major drainage originating from the upper reaches of the Southern Sierra Nevada Mountains. Much of the stream channel has carved its bed through solid granite. Minimal streamside riparian vegetation exists in pockets along the stream channel. Common dominant plants from the Kaweah drainage are sycamore, willow, interior live oak and ash. The adjacent slopes are variously covered by chaparral, blue oak/digger pine and black oak. A rainbow fishery exists in this stream.

WILDLIFE: The diverse riparian community along the entire Kaweah River drainage system provides habitat for mule deer, black bear, gray fox, California and mountain quail, wood duck, common mergansers, many nongame species including Cooper's hawk and osprey, California species of special concern, and the bald eagle (in winter). This drainage provides a migratory network leading into the Sierra Nevada Mountains which is a crucial link to the higher altitudes including Kings Canyon/Sequoia National Park. This riparian system is an important migratory stopping place and corridor for declining neotropical migrating birds.

*SENSITIVE PLANT SPECIES: Mouse buckwheat, Eriogonum nudum var. murinum, a Federal C-2 candidate plant and Kaweah brodiaea, Brodiaea insignia, a state of California endangered and Federal C-2 candidate, occur on BLM land within the river corridor.

CULTURAL / HISTORIC: This segment of the Middle Fork of the Kaweah falls within the ethnographical boundary of the Patwisha, a Western Mono group. Two prehistoric sites are known along this short segment of the Middle Fork. No formal evaluation of the prehistoric sites has been completed to determine their significance at present. There are no known historic sites of significance located on BLM public land along this river corridor. The area is regarded sensitive for the potential high occurrence of both prehistoric and historic resources.

PHYSIOGRAPHY/GEOLOGY: This short stretch of BLM administered land is underlain by Mesozoic granitic rock.

LAND USE: Surrounding private lands include residential and rural residential with parcels ranging in size from half an acre to twenty acres. Approximately .2 miles of the Middle Fork flows through the corner of a grazing allotment (# 00061) which is used from April 1 to September 30 each year. There are no mining claims and only one right-of-way: CA 16680 for water facility to BL&I Industries. There are withdrawals on adjoining public land for power projects including a conduit, penstock, roads and a ditch. The following developments can be seen from the river corridor: houses, gaging station, a power line running parallel to the river, flume, parallel trails and the paved road and the ending of a primitive road.

*SCENIC QUALITY: VRM Class III; Scenic Quality A

WATER QUALITY: unknown

ELIGIBILITY CONCLUSION: ELIGIBLE (sensitive plant species and scenic quality); Should be studied for Wild and Scenic River suitability but National Park Service should be lead agency; BLM has very limited public land adjacent to river.

CLASSIFICATION: Recreational

NAME OF WATER COURSE: **North Fork of the Kaweah River**

GENERAL DESCRIPTION: The North Fork of the Kaweah flows out of the southern Sierra Mountains and forms part of the border between Sequoia National Forest and Sequoia National Park. BLM's study corridor begins 1000 feet south of the junction of Pierce Creek and the North Fork of the Kaweah River, approximately 5 miles north of the town of Three Rivers and about 24 miles northeast of Visalia, in Tulare County. The North Fork generally flows in a southerly direction to the confluence

of the main fork of the Kaweah River. A locally-maintained paved and partially graded road runs within one-half mile along the entire length of the BLM contiguous corridor and has contributed to high use of the BLM parcels. This road serves access for fire emergency vehicles to private and National Park Service lands further north. The North Fork is within the Sheep Ridge WSA and borders the Milk Ranch/Case Mountain WSA. Non-BLM land south of the Forest/Park boundaries is in private ownership.

LEGAL DESCRIPTION: T15S, R28E, M.D.M., Sec. 27, NE 1/4; Sec. 26, S 1/2; Sec. 35, NE 1/4, SE 1/4; Sec. 34 (tangent to BLM parcel),; T16S, R28E, M.D.M., Sec. 2, E 1/2; Sec. 11, NE 1/4; Sec. 13, W 1/2; Sec. 24, W 1/2; Sec. 23, SE 1/4; Sec. 26 SE 1/4; T17S, R28E, M.D.M. Sec. 2, NW 1/4.

TOTAL MILES/BLM MILES (approximately): 6 / 4

RECREATIONAL VALUES: Sections of BLM's North Fork corridor are part of two wilderness study areas: Sheep Ridge and Milk Ranch/Case Mt. WSAs, both of which have been recommended by BLM as unsuitable for wilderness. Land in the Sequoia and King Canyon's National Parks, just southeast of the river is managed as wilderness. Three accessible areas along BLM's corridor receive high recreational use in the form of non-commercial kayaking, fishing, picnicking, swimming, sunning, dispersed camping and water play. These areas are Cherry Falls, Advance Site and Picnic Site # 1. The region's topographic variation, rugged, rocky terrain and vegetative variety combine to create areas of seclusion. However, the area is periodically overflown by military aircraft. The majority of the users are local residents; regional and national visitors are drawn to the National Park lands which are in close proximity.

ECOLOGICAL VALUES: This segment is a good example of a low elevation (2000 feet) drainage originating from South Sierra alpine elevations. Vegetation along the North Fork of the Kaweah and the other drainages of the Kaweah contains examples of habitat types often in excellent condition. It is a mixture of riparian forest, scattered oaks and grasses and dense chaparral on the drier, south-facing slopes. Common dominant plants are sycamore, willow, interior live oak and ash. The adjacent slopes are variously covered by chaparral, blue oak, digger pine and black oak. A rainbow trout fishery exists in this stream.

*WILDLIFE: The diverse riparian community along the entire Kaweah River drainage system provides habitat for mule deer, black bear, gray fox, California and mountain quail, wood duck, common mergansers, many nongame species including Cooper's hawk and osprey, California species of special concern, and the bald eagle (in winter). This drainage provides a migratory network leading into the Sierra Nevada Mountains which is a crucial link to the higher altitudes including Kings Canyon/Sequoia National Park. This riparian system is an important migratory stopping place and corridor for declining neotropical migrating birds.

SENSITIVE PLANT SPECIES: There are no documented locations of any sensitive plant species within this river corridor.

*CULTURAL/HISTORIC: The area ethnographically is situated at an interface between two Native American cultures. The Waksachi, a Mono group, were centrally located in the Epsom Valley area, but they also utilized lands to the south along the North Fork of the Kaweah within the northern portion of the river corridor. The Wukchumni, a Yokuts group occupied lands on the southern portion of the corridor along the Kaweah River extending from the vicinity of Three Rivers community to the west near Lemoncove. The North Fork of the Kaweah River was the scene of a utopian socialism experiment between 1884 to 1891. This was generally referred to as the Kaweah Colony but also known as the Kaweah Cooperative Commonwealth. It has been described as a form of German

socialism that envisioned an idealistic cooperative colony in which the working members would own and control production and profit accordingly. Arcady, which was later named Haskell's Bluff, was the first colony settlement a few miles up the North Fork. The first task of the colony was to build a road to the timber claims so pine and redwood lumber could be transported from a sawmill in the timber area to a mill for processing. Advance, an area a few miles up the North Fork from Arcady, was a focal area for road construction. Work was initiated in 1886, and as work progressed, other camps in addition to Advance were developed. After four years, the road was completed and a mill was in operation cutting lumber at a rate of 3,000 board feet per day. Due to the creation of the Sequoia National Park by Congress, the Secretary of the Interior soon confirmed timber claims within the Park as invalid. By 1892, the colony disbanded and moved away. Within one quarter of a mile of the river corridor there are four known prehistoric sites and one historic site (Advance). No formal evaluation of these sites has been developed at present; therefore, the significance of these cultural sites is uncertain. The remains at the Advance Site appear to lack physical integrity; however, the site does possess local historic interest. The river corridor is regarded as culturally sensitive for the occurrence of prehistoric and historic resources.

PHYSIOGRAPHY/GEOLOGY: Most of the North Fork flows through pre-Cretaceous metasedimentary rock. The northern three miles flows through Mesozoic granitic rock. Live Oak Gulch is granitic rock. The metasedimentary rock has potential for tungsten, but there are no known occurrences on public land.

LAND USE: Surrounding private lands include rural residences ranging in size from two and one-half to forty acres in size. Livestock grazing takes place on private lands, and several BLM allotments occur on the lands surrounding the River. The North Fork of the Kaweah flows through the eastern edge of allotment 00017. This pasture is unfenced from the river for approximately 1.75 miles, and is seasonally grazed as forage is available from October 1 to July 30. The remaining half mile is fenced from livestock. In allotment 00102, cattle can be grazed at any time of the year, but usually use occurs during winter and spring. The North Fork serves as the eastern boundary of this allotment for 2.5 miles, and keeps cattle from drifting eastward into the Park. Cattle will water at the river in the limited accessible riverbank stretches. The river also flows through .25 miles of allotment 00095. It is accessible for the full length to cattle that graze during the season of March 1 to June 30. There are four rights-of-way on BLM land along the N.Fork of the Kaweah (S 074189 for firebreak, CA 1830 for power transmission line to Southern California Edison Co., CA 5076 for road to E&S Mitchell, S 40969 for transmission line to Southern California Edison Co.). From the river corridor the following developments are visible: old mining buildings (in the northernmost section of BLM lands), primitive camping and picnic sites, trails which parallel and end at the river, and the paved and gravel road which parallels the river.

*SCENIC QUALITY: VRM Class II; Scenic Quality A

WATER QUALITY: Fair (in drought times, coliform and fecal coliform contamination is high); algae growth and trash is found in the river at high use areas.

ELIGIBILITY CONCLUSION: ELIGIBLE (due to wildlife values, scenic quality and cultural interest); Suitability study should be done in conjunction with the National Park Service (NPS) and private landowners with BLM (or NPS) as the lead agency.

CLASSIFICATION: Scenic (for the stretch of the river north of the NPS locked gate); Recreational (for the stretch of the river south of the NPS locked gate). Locked gate is in T16S, R28E, M.D M. Sec. 12, SW1/4.

NAME OF WATER COURSE: **Pine Creek**

GENERAL DESCRIPTION: Pine Creek is a tributary of the South Fork of the Kern River. It is located in Tulare County between Sacatar and Rockhouse Basin Wilderness Study Areas, largely along the paved road which links Kennedy Meadows to the Nine Mile Canyon Road. It falls into the Monache-Walker Pass National Cooperative Land and Wildlife Management Area. The main developments visible from the creek are a paved road and a dirt road, both paralleling the creek and private property at either end of the study corridor.

LEGAL DESCRIPTION: T23S, R36E, M.D.M. Sec. 3, W 1/2; Sec. 4, NE 1/4; T22S, R36E, M.D.M. Sec. 33

TOTAL MILES/BLM MILES (approximately): 5/1.8

RECREATIONAL VALUES: Although this creek contributes to the scenic surroundings of the area, it offers little opportunity for solitude as it is very close to the road with easy access. The many recreational opportunities in this area, especially within the WSAs, such as hunting, hiking, camping, picnicking, and OHV use and mountain bicycling, are not dependent upon Pine Creek. There is a washed out low-headed dam constructed possibly for recreational fishing and access across the creek, located at a pull-off from the access road.

ECOLOGICAL VALUES: Pine Creek is a typical low volume perennial stream running through a pinyon-juniper conifer type forest. Much of the stream course runs over granitic rocks. The thin and intermittent stream-side riparian zone consists of low growing willow trees found along the entire segment. This creek, very typical of the area, is similar to Long Valley and Chimney Creeks.

WILDLIFE: This drainage system flows through extensive pinyon pine and sagebrush/bitterbrush uplands. The streamside vegetation is variously dominated by grass and sedge, willow, pinyon pine and Jeffrey pine. The drainage system is an important breeding area, migratory corridor and wintering area for the Monache mule deer herd. The willow habitats are important nesting areas for the **willow flycatchers** as well as for other nesting and migratory neotropical migrating birds. The drainage is generally in good condition and provides a good example of this habitat in the southern Sierras. Nesting populations of the Federal candidate, **California spotted owl**, are found within this drainage system.

SENSITIVE PLANT SPECIES: There are no documented locations of any sensitive plant species within this river corridor.

CULTURAL/HISTORIC: Ethnographically, Pine Creek falls within the territory that was primarily claimed by the Tubatulabal cultural group. Only one prehistoric site is recorded along the tributary on BLM. Although the site has not been formally evaluated, preliminary investigations indicate the site is not eligible for the National Register. No historic resources are recorded along this stretch of the creek. The area is assigned a high probability for the potential occurrence of prehistoric resources.

PHYSIOGRAPHY/GEOLOGY: The Creek flows through Mesozoic granitic rocks.

LAND USE: Public lands adjoin the Sequoia National Forest. Private lands include rural residences between two and one-half to 40 acres in size. Pine Creek flows through allotment 00125, which is

grazed by cattle from approximately August 15 to September 30. Cattle will water at a spring at the source of the creek (Boy Scout spring) and from the creek surface water. Livestock grazing also occurs on the surrounding private land. This is in a slowly expanding rural residential area. There are no mining claims. BLM's one right-of-way is CA 19928 for road to Precise Machine and Tool).

SCENIC QUALITY: VRM Class III; Scenic Quality = C+

WATER QUALITY: Fair

ELIGIBILITY CONCLUSION: NON-ELIGIBLE

CLASSIFICATION: Recreational

NAME OF WATER COURSE: **Salinas River**

GENERAL DESCRIPTION: The Salinas River flows from Los Padres National Forest to Monterey Bay in the Pacific Ocean. BLM's study corridor lies approximately four and one-half miles upstream of Santa Margarita Lake, or about eight miles northeast of the town of Santa Margarita in San Luis Obispo County. The "lake" (reservoir) is the domestic water source for the City of San Luis Obispo.

LEGAL DESCRIPTION: T29S, R13E, M.D.M. Sec. 25 SW 1/4, Sec. 36, NW 1/4.

TOTAL MILES/BLM MILES (approximately): 40 / 1

RECREATIONAL VALUES: Recreation is limited as access is difficult. The BLM corridor is landlocked by private property and the river is in a steep canyon. There is moderate access up the river from the BLM corridor if permission is obtained to cross private land. Recreational activities are limited to hunting, hiking and horseback riding. However, there are abundant day-use recreational opportunities at the reservoir including fishing, boating, hiking, horseback riding, nature study, picnicking, swimming and environmental education.

*ECOLOGICAL VALUES: The BLM corridor has high value as a riparian area ranging from riparian forests of cottonwood, sycamore and willow trees to dense thickets of streamside mulefat and coyote bush. Water, food, and protection is afforded to the local fauna. The riparian belt of the Salinas River is unique for the area, since it is located along an isolated major drainage. The flow of the Salinas River, including the BLM corridor, is controlled by Santa Margarita Lake. The flow within the study area is slowed by beaver dams.

*WILDLIFE: A wide diversity of species are drawn to the area year round. The riparian vegetation is habitat for many nongame and game animals and is used by many migratory birds and bats. The federally endangered Least Bell's Vireo formerly nested along this river, and this portion may be important for recovery of this rare bird. This largely perennial stream and its accompanying vegetation provides suitable habitat for an abundant aquatic flora and fauna. The excellent condition of the habitat along with its physical alignment with the Coast Ranges makes it an extremely important migratory corridor for a group of birds known as the neotropical migratory birds which are showing severe declines throughout the country.

Due to steep topography adjacent to the river, the riparian vegetation comes in contact with several

major plant communities found in the Coast ranges. This diversity adds greatly to the number of animals using the river system.

SENSITIVE PLANT SPECIES: Hardham's evening primrose, Camissonia hardhamiae, a C2 candidate species for Federal listing occurs along the Salinas River but is not documented from the BLM corridor. Another C2 Candidate species that may occur along the river is the one-awned spineflower, Chorizanthe rectispina.

CULTURAL/HISTORIC: Geographically, the river corridor is situated near the interface of two pre-contact Native Californian Indian cultural groups. It appears that the two indigenous groups represented are the Migueleno or southern Salinan and the Obispeno, also known as the northern Chumash. Traditionally, the interior boundary of the two cultures was placed in the general vicinity of the Santa Margarita divide, situated just below the Salinas River. More recent research suggests the interior boundary of the two cultural groups may have been located as far north as Paso Robles. There are eight prehistoric sites along this stretch of the Salinas River within one quarter mile of the corridor. The majority of these sites are on private land. Historically, the Asistencia of Santa Margarita was constructed (circa 1809) for use as a chapel and storehouse for Mission San Luis Obispo. Between 1834 and 1846 secularization and dispersement of mission property in California occurred. This resulted in missions being broken up into numerous large Mexican land grants. The boundary of one of these land grants, Rancho Santa Margarita, is within one quarter mile of the proposed WSR corridor. However, there are no recorded historic sites per se within close proximity of the river. Currently, no formal evaluation of the prehistoric sites have been conducted to determine their significance. The area is regarded culturally sensitive for the potential occurrence of prehistoric and historic resources.

PHYSIOGRAPHY/GEOLOGY: The BLM portion is entirely underlain by Cretaceous granitic rock. Most of the rock is deeply weathered and commonly decomposed, giving rise to a highly dissected terrain that supports a dense growth of chaparral. Slightly weathered rock is intermittently exposed along the Salinas River.

LAND USE: Public land is approximately three miles north of the Los Padres National Forest boundary and two miles northwest of Santa Margarita Lake. Surrounding private land contains dispersed rural ranchettes approximately 20 to 80 acres in size. There are no mining claims. The 440 acre BLM parcel was determined to be unsuitable for livestock grazing due to steep slopes and dense brush outside of riparian areas. There is a potential for unauthorized grazing to occur on this parcel from adjacent private land, since it is unfenced.

*SCENIC QUALITY: VRM Class III; Scenic Quality A

WATER QUALITY: Good

ELIGIBILITY CONCLUSION: ELIGIBLE (Should be studied for eligibility due to scenic quality, uniqueness, wildlife values and ecological importance as a river corridor in this region. Study must be done in conjunction with state of California, USFS and numerous landowners. BLM's corridor is insignificant in comparison to miles of corridor of other landowners. BLM should cooperate with study, but not be the lead agency).

CLASSIFICATION: Scenic

NAME OF WATER COURSE: **Salt Creek**

GENERAL DESCRIPTION: Salt Creek is located between Highway 198 and Case Mountain (6,818 feet) in Tulare County, near Sequoia National Park. It joins the middle fork of the Kaweah River at a point nearly midway between the towns of Three Rivers and Hammond. Its steep, rocky terrain has been, to date, virtually landlocked from public access by private property. BLM may acquire public access to the Creek; this issue is discussed in the RMP.

LEGAL DESCRIPTION: T17S, R29E, M.D.M. Sec. 42; Sec. 43, SW 1/4; Sec. 45, NE 1/4; Sec. 44.

TOTAL MILES/BLM MILES (approximately): 5.5/2.2

RECREATIONAL VALUES: Very limited due to its present status as landlocked and its difficult physical access. Local landowners and their friends camp and hike along accessible stretches of the creek, and admire the waterfalls.

ECOLOGICAL VALUES: Much of the Creek contains a thin ribbon of stream-side riparian vegetation and is considered good wildlife habitat. The stream flows occur generally during the winter and spring months, drying up in the summer. Areas of localized perennial water can be found in the stream channel where spring-fed.

WILDLIFE: This drainage is an important tributary to the Kaweah River system and shares all of the characteristics of that system. Additionally, the headwaters of the drainage are intricately connected to ancient groves of Giant Sequoias. These groves are no doubt responsible for the hydrological regime of the Salt Creek and home to California spotted owls, a Federal C2 candidate for listing. Many vertebrates are restricted to this type of habitat and this is the only example of this habitat on Bureau land.

FLORA: Springville clarkia, Clarkia springvillensis, listed as endangered by the state of California and a Federal category 1 candidate, occurs along Salt Creek, but has not been documented from BLM lands.

CULTURAL/HISTORIC: The Patwisha, a Mono group, centrally occupied the territory ethnographically just below the confluence of the North and Middle Forks of the Kaweah River. Hence, the Patwisha apparently lived in large villages along the Middle Fork of the Kaweah River and at the confluence with Salt Creek. The stretch of BLM public land along Salt Creek is considered to be at least moderately sensitive for the potential occurrence of prehistoric resources. Three prehistoric sites are recorded along the corridor; however, no formal evaluation of site significance has been conducted to date. There are no known historic resources along this segment of Salt Creek.

PHYSIOGRAPHY/GEOLOGY: The Creek flows through Mesozoic granitic rock. There are two substantial waterfalls with 100 foot drops over a granitic escarpment. These waterfalls are presently located on private land.

LAND USE: Some livestock grazing, hunting, and timber production occurs on public lands. The Salt Creek drainage travels through two allotments which may run cattle at anytime during the year. Stock water is captured by either reservoirs or spring developments with troughs. There is no year-round surface water available to livestock in these allotments. There are no mining claims on public lands. One right-of-way has been granted (CA 4797 for road to Sequoia Forest Industries). Hunting

and timber production occurs on surrounding private land.

SCENIC QUALITY: VRM Class III; Scenic Quality B

WATER QUALITY: Fair

ELIGIBILITY CONCLUSION: NON-ELIGIBLE

CLASSIFICATION: Scenic

NAME OF WATER COURSE: **Soda Lake**

GENERAL DESCRIPTION: Soda Lake lies adjacent to the southwest edge of the San Joaquin biogeographic province in San Luis Obispo County, separated from the San Joaquin Valley floor by the Temblor Range. It is situated half-way between Bakersfield and San Luis Obispo on Highway 58, and is the dominant feature of the recently designated Carrizo Plains Natural Area. Development around the lake is being kept to the minimum to preserve the scenic integrity. It is possible to drive a partially paved, but mostly dirt road around Soda Lake. This road approaches the lake bed at varying distances, from right on its edge to one-half mile away. From parts of this large lake, evidence of grazing, houses, and a powerline are visible.

LEGAL DESCRIPTION: T31S, R19E, M.D.M. Sec 1, SW 1/4; Sec. 2; Sec. 11, E 1/2; Sec. 12; Sec. 13; Sec. 14 NE 1/4; Sec. 24 N 1/2; T31S, R20E, M.D.M. Sec. 18; Sec. 17; Sec. 20, W 1/2; Sec. 19, N1/2.

TOTAL MILES/BLM MILES (approximately): 12 square miles or 102 miles of shoreline/10 square miles.

*RECREATIONAL VALUES: This outstanding area offers an opportunity to view, appreciate and study the dynamics of a unique natural community. Soda Lake attracts worldwide visitation from birdwatchers, both individually and in commercial tours, as well as other conservation groups. Compatible visitor use facilities are planned and in the process of development.

*ECOLOGICAL VALUES: Soda Lake, the largest remaining natural alkali wetland in California, is a distinctive hydrologic type known as a seasonal astatic habitat (a lake that may fill and redry one or more times during any given year depending on the seasonal nature of precipitation and drought). Water is often present in the lake from December to April, infrequent in May and June, and rare in September and October after thunderstorm-induced flash floods.

*WILDLIFE: This ephemeral lake is a magnet to migratory waterbirds and raptors during the winter and spring when water arrives and causes a tremendous algal and fairy shrimp bloom. Often, up to ten thousand lesser sandhill cranes and dozens of greater sandhill cranes, a State listed and Federal candidate, spend several months of the winter and early spring getting in a proper physiological state for the long spring migration and breeding season. The peregrine falcon and bald eagle, State and Federally listed, occasionally winter in the area feeding on waterbirds drawn to the Lake. More commonly, wintering and nesting northern harriers and prairie flacons make use of the animals at Soda Lake. The western snowy plover, a Federal candidate, has been seen on Soda Lake and may well nest there. The aquatic food chain is driven by three species of fairy shrimp which are

not known to occur elsewhere. All three species are Federal candidates.

The surrounding vegetation, largely present because of the high water table, is an outstanding example of the extremely rare and highly endangered alkali sink scrub and valley saltbush scrub habitats. These habitats contain a number of listed animals such as the San Joaquin kit fox, San Joaquin antelope squirrel, giant kangaroo rat and the blunt-nosed leopard lizard, and Federal candidate short-nosed kangaroo rat.

*SENSITIVE PLANT SPECIES: The vegetation surrounding the lake supports stands of Valley Sink Scrub, one of the world's rarest community types. Two annual saltbush species, Lost Hills saltbush, Atriplex vallicola, and heart-leaved saltbush, A. cordulata, are known to occur around the lake. Both species are Federal C2 candidate plants. Another locally rare species that occurs around the lake, Jared's peppergrass, Lepidium jaredii, has recently been petitioned for emergency Federal listing.

*CULTURAL/HISTORIC: Soda Lake is centrally located in the confines of the Carrizo Plain. The plain lies between the known territories of three different Native California groups. Specifically, villages attributed ethnographically to the Salinan are found to the north in the Cholame Valley; the Yokuts were centrally located to the east in the San Joaquin Valley; and the Interior Chumash established villages in Cuyama Valley and the San Emigdio Mountains. Based upon limited archaeological investigations and the style of rock art found on the Carrizo, this information suggests the area was primarily used by the Chumash and perhaps to a much lesser degree by the Yokuts. There are no formally recorded prehistoric sites within one-quarter mile of the study area; however, one historic mining site is known. In the 1880s the saline deposits at Soda Lake were mined for use at nearby cattle ranches. Prior to 1908, the Carisa Chemical Company invested $60,000 for a plant and narrow-gauge railroad on the east side of the lake for the extraction of sodium sulphate. Between 1923 and 1925 the operation was active, and the product was hauled to McKittrick by a combination of the railroad and truck. In 1934 the plant was moved from the south side of the lake to the north and a small amount of mineral was produced. Various physical remains exist on the ground to mark the location of the mining operation; however, the physical integrity of the site is considered to be in poor condition.

PHYSIOGRAPHY/GEOLOGY: The Carrizo Plain is a structural depression (an area of interior drainage), which has resulted in the formation of Soda Lake. In 1912, Hoyt Gale, with the U. S. Geological Survey, estimated that Soda Lake contained reserves of over a million tons of sodium sulphate. The BLM has classified Soda Lake prospectively valuable for sodium. Sodium sulphate is used primarily in the production of kraft paper. In California today, sodium sulphate is recovered from Searles Lake.

LAND USE: This area is designated an Area of Critical Environmental Concern (ACEC). Additionally, it lies within the Carrizo Plain Natural Area (CPNA). The surrounding private lands which are expected to be acquired by BLM for the CPNA are open space and scattered ranches. There is some livestock grazing as well as some agricultural development on The Nature Conservancy and State lands. However all public lands within 1/4 mile of highwater mark are closed to grazing. The area is partially fenced, but does have the possibility of unauthorized sheep grazing from private lands on the north and east sides of the lake. There are no mining claims, one oil/gas lease and two rights-of-way: (S2538 to PG&E for power transmission line and access road, and S077189 to AT&T for buried telephone line and communication site).

*SCENIC QUALITY: VRM Class II; Scenic Quality A. One of the splendors of this area is the vast, unobstructive views adjacent to and across the lake, virtually a "sea of nothingness" bordered by the Temblor and Caliente Ranges. This unaltered open space is priceless, especially considering that

the intensively developed oil and gas fields of the San Joaquin Valley lap at its borders, and the megalopolis of Los Angeles and the southern California coast are close-by.

WATER QUALITY: Poor

ELIGIBILITY CONCLUSION: ELIGIBLE (due to ecological, geological, recreational, floral and faunal T&E species, and historic resources)

CLASSIFICATION: Scenic

NAME OF WATER COURSE: **South Fork of the Kaweah**

GENERAL DESCRIPTION: The South Fork of the Kaweah River starts at the confluence of several creeks above Clough Cave in Sequoia National Park, in Tulare County. It flows in a westerly, northwest direction to meet the main fork of the Kaweah below the town of Three Rivers. The river flows close to a small parcel, but not on BLM land. The remainder of the South Fork flows across privately-owned land and in its upper reaches, Sequoia National Park. A local paved and graded dirt road parallels the river corridor.

LEGAL DESCRIPTION: T18S, R29E, M.D.M., Sec. 23 (tributary). Main stream does not flow on BLM land.

TOTAL MILES/BLM MILES: 12 miles/none

RECREATIONAL VALUES: Not significant

ECOLOGICAL VALUES: This segment is a typical example of a low elevation major drainage originating from the upper reaches of the southern Sierra Nevada Mountains. Most of the segment is not impacted from human uses. The stream tends to be a high energy stream course. Portions of the channel are occasionally scoured by high stream flows. Good examples of low elevation south Sierran streamside riparian habitat are found along this stream. A rainbow trout fishery exists in this stream.

WILDLIFE: The diverse riparian community along the entire Kaweah River drainage system provides habitat for mule deer, black bear, gray fox, California and mountain quail, wood duck, common mergansers, many nongame species including Cooper's hawk and osprey, California species of special concern, and the bald eagle (in winter). This drainage provides a migratory network leading into the Sierra Nevada Mountains, which is a crucial link to the higher altitudes including Kings Canyon/Sequoia National Park. This riparian system is an important migratory stopping place and corridor for declining neotropical migrating birds.

SENSITIVE PLANT SPECIES: Kaweah brodiaea, Brodiaea insignis, a plant species listed by the State of California as endangered and a Federal C2 candidate for listing occurs within one-quarter mile of this river on BLM land. Kaweah monkeyflower, Mimulus norrisii, a category 3C candidate for Federal listing and mouse buckwheat, Eriogonum nudum var. murinum, a Federal C2 plant, occur along the river but have not been documented on BLM land in that area.

CULTURAL / HISTORIC: This segment of the South Fork lies to the south of the area occupied by

two cultural groups. The Patwisha Mono group were centrally located below the Middle Fork of the Kaweah in the Salt Creek vicinity. The Wukchumni, a Foothill Yokuts group, ethnographically lived along the Kaweah River stretching from the vicinity of Three Rivers community to the west near Lemoncove. There are no formally recorded prehistoric or historic resources on BLM public land along tributaries south of the South Fork. However, the area is regarded as sensitive for the potential occurrence of prehistoric resources.

PHYSIOGRAPHY/GEOLOGY: The Creek flows through Mesozoic granitic rock.

LAND USE: Cattle drifting over from adjacent unfenced private lands makes for a high probability that the riverine habitat is grazed. There are no BLM land use authorizations within 1/4 mile of the river nor are there any mining claims.

SCENIC QUALITY: VRM Class III; Scenic Quality B

WATER QUALITY: Unknown

ELIGIBILITY CONCLUSION: NON-ELIGIBLE (This determination is due to the presence of sensitive plant species near the river corridor coupled with the scarcity of BLM lands. Should the National Park Service lead a Wild and Scenic River study, the BLM should be a contributing agency).

CLASSIFICATION: Recreational

NAME OF WATER COURSE: **South Fork of the Kern River**

GENERAL DESCRIPTION: The South Fork of the Kern River flows out of Sequoia National Forest into Isabella Lake and reaches BLM land in a small area of broad valley and floodplain along Highway 178 near Onyx in Kern County. The BLM corridor falls into the Domeland Wilderness Study Area, recommended unsuitable for wilderness by the BLM. Public land adjoins the Sequoia National Forest and is within the South Fork Cooperative Management acquisition area. It also falls within the Monache-Walker Pass National Cooperative Land and Wildlife Management Area.

LEGAL DESCRIPTION: T25S, R35E, M.D.M., Sec. 34 SE 1/4; Sec. 35 SW 1/4; T26S, R35E M.D.M, Sec. 4.(wetland area)

TOTAL MILES/BLM MILES: 83/.8

RECREATIONAL VALUES: Some local fishing may occur here.

*ECOLOGICAL VALUES: The South Fork of the Kern is an excellent example of a major drainage leading out of the high Sierras through undeveloped lands into the South Fork valley. The BLM river corridor occurs in a wide riparian zone with a strong water flow. A riparian forest surrounds the water course, dominated with cottonwood trees, alders and willows and containing a diversity of herbaceous species.

*WILDLIFE: The South Fork of the Kern River contains the largest continuous stand and one of the last stands of cottonwood riparian remaining in the Central Valley of California. This riparian system contains a diverse flora and fauna, further enhanced by the diversity of adjacent major floristic

provinces such as the Sierran, Mojave, Great Basin and Californian. The convergence and mixing of these floristic provinces occurs nowhere else. A regionally significant diversity of game and nongame species is documented to occur along this drainage system. Important research is underway on the population biology and habitat requirements of yellow-billed cuckoo, summer tanager and willow flycatcher.

The upper reaches of the drainage contain appropriate habitat for California spotted owls. Surveys are currently being conducted to determine the number of birds in the region. The South Fork of the Kern River is a regionally significant migratory corridor and nesting area for neotropical migrating birds.

*SENSITIVE PLANT SPECIES: Mimulus pictus, a California Native Plant Society listed 1B species and Calochortus striatus, a Federal candidate 2 species, both occur within one mile of public land.

LAND USE: Livestock grazing, irrigated pastures, and intensive agricultural development occur on surrounding private lands. The South Fork of the Kern River flows through .8 miles of allotment 00080 on BLM land. This portion of the allotment is unfenced, as is the river from private pasture land that adjoins it. There is also an unfenced and unalloted 80 acre parcel of public land on the South Fork of the Kern within .5 mile of the parcel described above. This parcel is most likely grazed without authorization. Grazing therefore does occur on the BLM river riparian areas, which also provide shade. There are three rights-of-way (CA9471 for road to C. Allen, LA 01613327 for phone line to Contel and CA 16852 for the highway (Federal Highway Act)).

*CULTURAL / HISTORIC: This segment of the South Fork of the Kern River played an important role in the historical development of this area. William Scodie was proprietor of the first store built in Onyx in the 1860s. The historic Cottage Grove Cemetery is found nearby Onyx. Several ranches such as the Bloomfield, Smith, and Onyx Ranches attest to the historical importance of ranching along the South Fork. This area ethnographically is at the interface between the Tubatulabal and the Kawaiisu Indians; however, the stretch along the river is considered within Tubatulabal territory. There are no formally recognized cultural properties of significance within this segment of the South Fork corridor, although prehistoric sites of potential significant value are known along the river.

PHYSIOGRAPHY/GEOLOGY: Exposed granitic rock outcrops can be observed along the entire stream course. The stream itself flows through quaternary alluvium. There is potential for sand and gravel extraction.

*SCENIC QUALITY: VRM Class IV; Scenic Quality A

WATER QUALITY: Fair

ELIGIBILITY CONCLUSION: ELIGIBLE (Due to the combination of ecological, wildlife, prehistoric and historic, and scenic quality values); T25S, R35E M.D.M. Sec.34 SW1/4 SE1/4 is non-eligible due to its high potential for sand and gravel extraction. BLM's study corridor is limited; USFS has designated the portion of the S.Fork which flows through their land a Wild and Scenic River. In the Sequoia Forest Land Management Plan the BLM segment of the S. Fork was labeled as "non-eligible" due to diversions and lack of perennial water. However, since their plan was written, guidelines have been altered; BLM guidelines are broader as to what constitutes an eligible corridor.

CLASSIFICATION: Recreational

NAME OF WATER COURSE: **Spanish Needles Creek**

GENERAL DESCRIPTION: Spanish Needles Creek is a tributary of the Canebrake watershed, located partially within the Owens Peak Wilderness Study Area, and also within the Monache-Walker Pass National Cooperative Land and Wildlife Management Area. The closest settlements are Canebrake and Onyx; both towns are located on Highway 178. The river corridor crosses both BLM and private lands. A dirt road parallels the creek approximately 50% of its length. Evidence of human impact is low. Developments, other than the dirt road, include the crossing of the Pacific Crest National Scenic Trail, fences, dirt tracks and a spring box. Impacts from cattle grazing are high.

LEGAL DESCRIPTION: T25S, R37E, M.D.M. Sec. 7; Sec. 8; Sec. 9; T25S, R36E, M.D.M.Sec. 12, S 1/2; Sec. 14.

TOTAL MILES/BLM MILES (approximately): 5/4

RECREATIONAL VALUES: The Creek provides a reliable water source for PCNST users; consequently, dispersed camping occurs near the river. Otherwise, access is blocked by private property.

ECOLOGICAL VALUES: An intermittent ribbon of low-growing willow trees grows along the creek. Spanish Needles Creek can become dry in places during the summer and is very typical of the creeks found in the region.

*WILDLIFE: The scattered cottonwood groves and clumps of willow and coyote bush are oases surrounded by one of the most diverse areas in the country. The area immediately adjacent to this drainage supports plants and animals with affinities for the Mojave Desert, the Great Basin, the Sierran Mountain Province and the Central Valley. Spanish Needles is an important representative of this edge effect of four bioregions.

*SENSITIVE PLANT SPECIES: Dedecker's clover, Trifolium dedeckerae, a category 3C candidate for Federal listing, and Spanish Needle onion, Allium shevockii, a California Native Plant Society list 1B species, are known to occur on BLM land within the river corridor. Spanish Needle onion is known to occur only along this creek.

CULTURAL/HISTORIC: The area is ethnographically situated at an interface between the Tubatulabal and the Kawaliisu native groups. Although no significant prehistoric sites are known along the creek corridor, there are a couple of sites nearby that could be eligible for the National Register. This area is of particular interest to the public and educational groups due to the rock art values exhibited at these sites. No historic resources of significance are known along the corridor.

PHYSIOGRAPHY/GEOLOGY: The Creek flows through Mesozoic granitic rock.

LAND USE: Public lands adjoin the Sequoia National Forest. Surrounding private lands contain rural residences between two and one-half to 40 acres in size. Livestock grazing occurs on the surrounding private lands, with 4 miles of the creek falling into two BLM allotments. These allotments use spring surface water during March 1 - April 30 and January 1 to June 30. There are several mining claims near the river, a land use permit for an apiary site, and two BLM rights-of-way (CA 8763 for the Pacific Crest National Scenic Trail, and R4845 for a BLM road).

*SCENIC QUALITY: VRM Class II and III; Scenic Quality A

WATER QUALITY: Poor

ELIGIBILITY CONCLUSION: ELIGIBLE (due to scenic quality and combination of ecological-wildlife and floral values)

CLASSIFICATION: Recreational (lower stretches); Scenic (upper stretches)

APPENDIX I - STANDARD OPERATION PROCEDURES

Standard Operating Procedures, or SOPs, are what the name implies. Since they do not allocate resources or uses, they are not land use allocations. Nor are they management actions, as they do not necessarily result in any concrete action. Instead, they say how the BLM will handle certain situations, in order to pursue objectives.

These SOPs are included so as to provide the BLM with additional guidance as the RMP is implemented, and also to provide the public with an opportunity to review them. Adherence to the SOPs adopted in the Final RMP is non-discretionary.

Most of the following SOPs are guidelines that apply to all alternatives. The last few SOPs vary by alternative, and are so labeled.

ALL PROGRAMS

-Authorizations for new surface disturbing activities (i.e. roads, range improvements, and pipelines) shall require the use of existing corridors where feasible, so as to avoid impacts to T&E species and minimize impacts to significant cultural and paleontological resources, riparian communities, and sensitive species.

-Authorizations for surface disturbing activities near the location of sensitive plants will either require avoidance of those plants, or will include restrictions for all or part of the time period from germination to seed dispersal. Plant inventories for sensitive species conducted during the appropriate season during a favorable year may be required before any disturbance may occur.

-New development within 1/4 mile of springs, guzzlers, or riparian areas will be avoided whenever possible. New water developments will not be made available to livestock within this distance. This restriction is intended to minimize wildlife disturbance at key water locations and to limit impacts to sensitive watersheds. Activities that may be allowable in these areas include spring developments, water pipelines, and fences. Powerlines, roads, and other linear developments may be allowed to cross riparian areas where there are no viable alternatives.

-Exploration, construction, and development activities will either not be allowed, or will have seasonal restrictions imposed, within a 1/2 mile radius around raptor nest sites, foraging grounds, and wintering areas, whichever is found by the authorized officer to best protect the area. Seasonal restrictions shall allow for undisturbed courtship, nest building, incubation and fledging. This may be as long as six months, depending upon the species.

-Aerial disturbance of crucial wildlife habitat (i.e., waterfowl staging areas, big game winter ranges, calving and fawning areas) may be restricted through altering flight routes and elevation restrictions.

-Exploration, drilling, and construction activities may be prohibited during periods of runoff, or when soils are wet and muddy, in order to minimize watershed damage.

-The use of motor vehicles off designated routes of travel or other approved corridors is not authorized except as described in Appendix H-1. Established roads and bridges, or temporary bridges must be used to cross riparian areas whenever possible. This limitation is necessary to minimize disturbance to watershed, plant, and wildlife values.

-Base camps will be required to be located at least one mile from important plant and wildlife habitat, unless NEPA analysis shows that impacts can be effectively avoided. This restriction is intended to minimize unintentional disturbance to sensitive species.

-The speed limit on unpaved roads not maintained by the county, shall be a maximum of 25 MPH, in order to minimize wildlife casualties and PM_{10} production.

-The Bureau will preclude construction of, or require special location or design of, roads and/or well pads in areas of extremely unstable bedrock formations and active landslides.

-Structures and surface disturbing activities will be allowed within compensation areas only if the alternatives would result in greater impacts to the species of concern. Activities proposed for these areas must be compatible with the survival and recovery of the species for which the area was designated.

-New wells and powerlines within condor use areas or adjacent to condor use areas, will not be built within 100 yards of ridgelines, where necessary to minimize impacts to condors.

-All surface disturbing activities shall be planned and designed to minimize erosion, whether by wind or water. Consistency with state air pollution laws will be maintained.

-Civil engineering studies and/or geotechnical studies will be required prior to road/drill pad construction within areas of unstable bedrock/soils to determine feasibility.

-Activity plans shall include Best Management Practices (BMPs) to reduce water quality pollution pursuant to BLM's 208 Water Quality Management Report. As a part of the monitoring program, these Best Management Practices will be evaluated for their adequacy in reducing water pollution.

-All water projects or projects which could influence the beneficial use of water shall conform to BLM Best Management Practices Guidelines.

-A listing of hazardous materials on public lands, their storage locations, and the proposed method of disposal shall be required as a part of all appropriate authorizations.

-Major (Class 1) undesirable events are required to be reported to the Caliente Resource Area office within 24 hours. A field investigation will commence within 24 hours of notification. A written report must be submitted within 15 days. Medium (Class 2) undesirable events must be reported in writing within 15 days. Field investigations will be initiated at the discretion of the Authorized Officer.

-Removal of vegetation and surface disturbance will be minimized for all land use authorizations, including range improvements. Surface rehabilitation measures will be applied when needed to protect the soil surface.

-When onsite reclamation of impacts to soils or vegetation is impractical, offsite compensation may be required.

-A visual resource contrast rating will be conducted for all construction sites. Projects may be modified to protect visual resource quality.

-Personal property left unattended on public land for more than 24 hours will be treated as abandoned.

MINERALS

-Open ponds containing cyanide or other toxic solutions will be fenced and covered with netting.

Oil, Gas, and/or Geothermal

-Oil, gas, and geothermal lessees shall be required to develop an operations plan for each lease prior to submission of the initial APD. This may expedite the processing of other post-lease proposals. Plans will address road designation, signing, air quality, road maintenance, dust control, and utility corridors.

-Use of ridgelines will be avoided in condor habitat or on VRM Class II and III lands.

-Prior notification will be required for flaring and venting that is less than 24 hours. Applications for flaring and venting beyond 24 hours will be approved as per regulations and orders.

-Lessees shall be required to provide analyses of gases being flared or vented. A third party will be used to look for the presence of hazardous materials. The extent of the testing shall be spelled out in the APD.

-Wells shall be reclaimed as soon as possible after abandonment, and prior to lease relinquishment. On heavily disturbed areas such as drill islands, recontouring or pad clearing may be required just after abandonment, with final reclamation required at lease relinquishment and prior to releasing the bond. The amount and season of reclamation will be determined by the authorized officer on a case-by-case basis.

-Reclamation shall include reseeding, and if necessary, temporary fencing, unless it is determined by the Bureau that natural revegetation would be preferable. The timing and extent of reseeding shall be specified by the authorized officer on a case-by-case basis.

-The integrity of well casing is extremely important. Contamination may result from drilling, production, or other means. Cement bond logs documenting the adequacy of aquifer isolation are required for new activity. Older wells will be required to have their casing pressure tested and/or a cement bond log run, to ensure that there are no holes or other defects in the casing which might allow fluids to migrate into an aquifer. Remedial actions that may be required include cement squeezing and liners.

-Inspections are required (using x-rays or other Bureau approved technology) on all pipelines every ten years, or sooner if conditions warrant. Pipelines that do not pass inspection must be repaired, replaced, or removed.

-Pipelines will be removed upon abandonment, unless impacts of removal outweigh benefits. If abandoned pipelines of unknown ownership are present within a lease, their removal will be required when new pipelines are authorized, with the length removed not to exceed the length of the new pipeline.

-Authorizations for oil, gas, and geothermal exploration and post-lease activities shall protect Federally listed species and National Register quality sites and also minimize impacts to air quality and other sensitive resources.

-Development, exploration, and construction activities for oil & gas or geothermal resources will be restricted or moved during periods necessary to protect habitat important to wildlife, as specified in the Caliente RMP. The periods requiring protection are generally those seasons that are limiting factors in the animals' life cycles.

REALTY

-All realty actions will be consistent with Departmental regulation and Bureau policy. All realty actions will also be consistent with county general plans to the maximum extent that the Bureau's authorized officer finds consistent with Federal law.

Withdrawals & Classifications

-Applications for new withdrawals on public lands from Federal agencies will be considered on a case-by-case basis.

Disposals

-Exchanges may be arranged with private conservation organizations using statewide exchange agreements and pooling agreements. Such exchanges need not balance the land values exactly on each exchange, since the balance will be maintained on a statewide basis.

-Existing access across lands available for disposal that leads to other BLM parcels will be retained through a right of way reservation to the United States.

Leases & Permits

-Apiary (beekeeping) sites will be authorized by FLPMA land use permits as time and

funding permit. All newly authorized sites must undergo a site specific clearance for sensitive plant and animal species, and cultural resources. In general, sites will maintain a separation of at least three (3) miles from any other apiary sites, whether on public lands or not. Sites will not exceed 0.26 acre in size. The Bureau will receive fair market value rental for all apiary sites permitted.

-Recreation and Public Purposes Act lease applications and patent applications will be treated on a case-by-case basis within the guidelines for each management area. Lands which are not designated for disposal may be considered for such applications on a case-by-case basis, taking into account the character of the land and the proposed use.

Rights-of-Way

-Right-of-way applications will be considered on a case-by-case basis for a variety of uses including access roads, oil, gas or other pipelines, utility lines, and site-type facilities. Where feasible, use of existing corridors will be required. Applications must undergo site specific clearances for sensitive plant and animal species, and cultural resources.

-Requests for public access and road Rights of Way (ROWs) shall be handled on a case-by-case basis. Review of other proposals for public access easements may result in the determination that no access will be obtained in order to better protect resource values. Proposals for new roads shall be evaluated on their own merits.

-Administrative access shall continue to be handled on a case-by-case basis through the use of reciprocal ROWs, acquired easements, and Memoranda of Understanding (MOUs).

Unauthorized Use, Development, & Occupancy

-Incidents of unauthorized use, occupancy, or development on public lands will be identified and resolved in a prompt, efficient manner. Back rental, damage compensation, and rehabilitation or stabilization of the damaged lands will be required at the expense of the trespasser. Authorization may then be granted for the use or facility. Attempts may be made to resolve trespass administratively before resorting to civil or criminal procedures for resolution.

GRAZING

-Allotment Management Plans will be prepared on all Category I allotments.

-Water sources that are susceptible to livestock trampling will be protected.

-Results of monitoring studies for trend of ecological site condition on completed AMPs shall be reviewed on a regular basis (3-5 years). Management changes will be made, if needed, based on results of these reviews.

-Results of monitoring studies for forage utilization will be reviewed on a yearly basis. Management changes will be made, if needed, based on results of these reviews.

-Modification of mulch and forage utilization levels to meet RMP objectives will take place if necessary during activity plan review and evaluation.

-Natural barriers will be considered where possible for providing livestock movement control to reduce the amount of fence construction.

-All new proposed livestock watering facilities will be designed to adequately facilitate wildlife water needs. Wildlife escape devices will be installed and maintained in new water troughs.

OTHER

-Prescribed burning shall be designed to benefit natural and fire dependent

communities.

-The burning of trash or waste vegetation will not be permitted on public lands without written permission from the authorized officer.

-The BLM will cooperate with other Federal, state, and local agencies to eliminate marijuana and illegal drug production.

-Wind energy development will be managed to minimize impacts to visual resources and sensitive species, and to avoid residual impacts to threatened or endangered species.

-The BLM will participate in and/or facilitate appropriate search and rescue actions as directed by BLM Manual 8361.2. This may include: supplying maps, vehicles, radios, aircraft, or other equipment; utilizing employees to manage or participate in searches; providing information regarding topography, water sources, mineshafts, etc to other agencies; and monitoring search efforts.

SOPs BY ALTERNATIVE

The following Standard Operating Procedures vary by alternative, in order to reflect the objectives of each alternative.

Alternative 1

-Exploration and post-lease activities will be handled consistently with applicable oil and gas regulations, orders, and specific conditions of approval that are developed on a case-by-case basis through the NEPA process.

-Incentives will be provided for the use of cleaner fuel when available for on-lease applications, in order to reduce air emissions. Participation in the fuel substitution program is allowed as per Bureau policy.

-The conditions of approval and mitigating measures listed in Appendix F will be applied as described in that section. Application of the following guidelines for oil and gas APDs, ROWs, and Sundry Notices will occur when applicable as a standard operating procedure for the protection of threatened or endangered species and their habitat, unless otherwise specified by the authorized officer.

Seasonal restrictions within the lease will be required to safeguard seasonally sensitive wildlife, plant, and watershed values in sensitive areas.

Multiple well drilling pads will be necessary in areas where the lease contains widespread sensitive surface resources.

Drilling pads must have adequate measures to prevent oil and gas production and operation fluids and other materials from escaping the immediate pad area. Pads must hav e berms or other protective margins. Pads must have diversion ditches or other protective measures to allow the natural drainage to flow around the pad in storms.

Well sites may have to be relocated in areas where sensitive resources are found to be occupying previously existing well pads. Other drilling and operation facilities may also have to be relocated; this includes tank farms, and even roads in the case of migrating fauna being adversely impacted.

Dust control measures will be taken in areas where loose soils and dry conditions make them necessary. Covering of moved material, and the seeding of uncovered soils to lessen the potential of dust, are the types of measures which will be required. In areas where the fungal spore causing Valley Fever is present, dust control measures are mandatory.

Berms must be constructed so that drilling muds, produced water, and other fluids and materials do not escape the drilling pad area at any

time. They must comply with Federal, State, County, and other regulations. They must be constructed so that washovers do not occur during storms.

Fencing is required around and netting over open earthen sumps.

Cellar grates are required.

Unitization and communitization will be used to reduce impacts to surface resources in sensitive areas, or encouraged as appropriate.

Mud pits will be fenced and covered with netting or wire.

-Compensation for new surface disturbing activities will be required where significant residual impacts occur to T&E species, and may be required to offset impacts to riparian areas and other unique habitats.

Alternative 2

-Exploration and post-lease activities will be managed to minimize and mitigate impacts to Federally listed species, National Register quality sites, and other sensitive resources. Where these resources occur, every effort will be made to avoid residual impacts.

-Incentives will be provided for the use of cleaner fuel when available for on-lease applications, in order to reduce air emissions. Participation in the fuel substitution program as per Bureau policy.

-The conditions of approval and mitigating measures listed in Appendix F will be applied as described in that section. Application of the guidelines described above for Alternative 1, plus the following guidelines for oil and gas APDs, ROWs, and Sundry Notices, will occur when applicable as a standard operating procedure for the protection of sensitive resources, unless otherwise specified by the authorized officer.

Tanks or prefabricated sumps will be used in lieu of open earthen sumps.

Unitization and communitization will be used to reduce impacts to surface resources in sensitive areas.

Painting, screening, or landscaping permanent structures will be done as appropriate

Co-mingling of production facilities and compensatory royalty assessment/agreements will be encouraged in areas where sensitive resources may be otherwise impacted.

-Compensation for new surface disturbing activities will be required where residual impacts occur to T&E species, and will be required to offset impacts to riparian areas and other unique habitats.

Alternative 3

-Exploration and post-lease activities will be managed to minimize and mitigate impacts and to avoid residual impacts to T&E species, National Register quality sites, and other sensitive resources. Activities will be handled on a case-by-case basis consistent with applicable oil and gas regulations and orders, specific stipulations or conditions of approval developed through the NEPA process, and standard stipulations or conditions of approval shown in Appendix F.

-Incentives will be provided for the use of cleaner fuel when available for on-lease applications, in order to reduce air emissions. Participation in the fuel substitution program is allowed as per Bureau policy.

-The conditions of approval and mitigating measures listed in Appendix F will be applied as described in that section. Application of the guidelines shown for Alternative 1, as well as those that follow for oil and gas APDs, ROWs, and Sundry Notices, will occur when applicable as a standard operating procedure for the protection of threatened or endangered species or their habitat, unless otherwise

specified by the authorized officer.

> Sumps and mud pits must be lined, covered, and fenced as appropriate. When the sump is to be reclaimed, State, Federal, and County regulations must be adhered to in the disposal of contaminants.
>
> Unitization and communitization will be used to reduce impacts to surface resources in sensitive areas.
>
> Painting, screening, or landscaping permanent structures will be done as appropriate
>
> Co-mingling of production facilities and compensatory royalty assessment/agreements will be encouraged in areas where sensitive resources may be otherwise impacted.

-Compensation for new surface disturbing activities will be required where significant residual impacts occur to T&E species, and may be required to offset impacts to riparian areas and other unique habitats.

Alternative 4

-Exploration and post-lease activities will be managed to avoid residual impacts to T&E species and minimize residual impacts to National Register quality sites and other sensitive resources. Activities will be handled on a case-by-case basis consistent with applicable oil and gas regulations and orders, specific stipulations or conditions of approval developed through the NEPA process, and standard stipulations or conditions of approval shown in Appendix F.

-Participation in the fuel substitution program will be encouraged to reduce air emissions.

-The conditions of approval and mitigating measures listed in Appendix F will be applied as described in that section. Application of the guidelines shown under Alternative 1, as well as those that follow for oil and gas APDs, ROWs, and Sundry Notices, will occur when applicable as a standard operating procedure for the protection of threatened or endangered species or their habitat, unless otherwise specified by the authorized officer.

> Sumps and mud pits must be lined, covered, and fenced as appropriate. When the sump is to be reclaimed, State, Federal, and County regulations must be adhered to in the disposal of contaminants.
>
> Unitization and communitization will be encouraged to reduce impacts to surface resources in sensitive areas.
>
> Painting, screening, or landscaping permanent structures will be done as appropriate
>
> Compensatory royalty assessment/agreements will be encouraged.

-Compensation for new surface disturbing activities will be required where significant residual impacts occur to T&E species.

-An area up to 150 feet in diameter around active wells may be kept clear of vegetation as a part of normal maintenance activities.

Alternative 5

-Exploration and post-lease activities will be managed to minimize and mitigate impacts and to avoid residual impacts to T&E species, National Register quality sites, and other sensitive resources. Activities will be handled on a case-by-case basis consistent with applicable oil and gas regulations and orders, specific stipulations or conditions of approval developed through the NEPA process, and standard stipulations or conditions of approval shown in Appendix F.

-Incentives will be provided for the use of cleaner fuel when available for on-lease application, in order to reduce air emissions. Participation in the fuel substitution program is

allowed as per Bureau policy.

-The conditions of approval and mitigating measures listed in Appendix F will be applied as described in that section. Application of the following guidelines, as well as those shown under Alternative 1 for oil and gas APDs, ROWs, and Sundry Notices, will occur when applicable as a standard operating procedure for the protection of threatened or endangered species or their habitat, unless otherwise specified by the authorized officer.

Tanks or prefabricated sumps will be used in lieu of open earthen sumps.

Unitization and communitization will be used to reduce impacts to surface resources in sensitive areas.

Painting, screening, or landscaping permanent structures will be done as appropriate

Co-mingling of production facilities and compensatory royalty assessment/agreements will be encouraged in areas where sensitive resources may be otherwise impacted.

-Compensation for new surface disturbing activities will be required where residual impacts occur to T&E species, and may be required to offset impacts to riparian areas and other unique habitats.

-An area up to 150 feet in diameter around active wells may be kept clear of vegetation as a part of normal maintenance activities. Removal of re-established vegetation may occur following a BLM determination that threatened or endangered species would not be affected by the action. Use of herbicides is discouraged, but may occur subject to BLM approval.

APPENDIX J

Carrizo Plain Natural Area Interagency Cooperative Management Plan

The Carrizo Plain Natural Area Interagency Cooperative Management Plan (Carrizo Plan) was developed in 1990. This activity plan was not formally approved, nor had it undergone environmental review. Impacts of implementation of the Carrizo Plan, as well as the impacts of the RMP allocations that provide the direction for the Carrizo Plan, have been analyzed as a part of the overall RMP analysis, and are included in Chapter 4. The Carrizo Plan is included here for public review. Maps, figures, and schedules that illustrate specific points are on file at the BLM's Caliente Resource Area office, and are available for review.

CARRIZO PLAIN NATURAL AREA

INTERAGENCY COOPERATIVE MANAGEMENT PLAN

USDI Bureau of Land Management

The Nature Conservancy

California Department of Fish and Game

The Carrizo Plain Natural Area is a cooperative effort between the Bureau of Land Management, The California Department of Fish and Game, and The California Nature Conservancy. This management plan represents a commitment by these cooperating agencies to provide wise stewardship and conservation of the Natural Area's sensitive and unique natural resources. The Natural Area is to be managed for the benefit of threatened, endangered and sensitive species and their habitats under the principles of multiple use management. The area's unique biological, cultural, geologic and recreational qualities will be maintained and enhanced within the guidelines, objectives and planned actions described herein. Adjustments to this plan will be made through the same spirit of cooperation that produced this first document.

While this plan focuses on accomplishments for the first several years of the Natural Area's existence, the cooperating agencies intend to maintain the ecological integrity of the area in perpetuity so that the CPNA may truly contribute to the recovery of the threatened and endangered species. As cooperators and land managers in this project, these agencies hereby make this commitment.

This management plan was developed and will be implemented under Sikes Act Authority and agreement between the Bureau of Land Management and the California Department of Fish and Game.

_____

Area Manager, Caliente Resource Area

_____

Regional Manager, Region 3,
California Department of Fish and Game

_____

Director, California Nature Conservancy

TABLE OF CONTENTS

Page

A. Introduction 745

B. Administration 746

C. Plant and Animal Community Management 751

Natural Communities 751

Featured Species

Plants 752

Animals 754

D. Cultural Resources 760

E. Natural History 763

F. Soil and Water Management 763

G. Recreation and Access 765

H. Grazing Management 768

I. Realty Management 771

J. Minerals Management 773

K. Fire Management 775

L. Cadastral Survey 776

M. Research 776

N. Monitoring and Evaluations 782

O. Implementation Schedule 782

P. Cost Schedule 782

Appendices 783

A. INTRODUCTION

The Carrizo Plain Natural Area, lying adjacent to the southwest edge of the San Joaquin Valley, is the largest remaining representative of the San Joaquin biogeographic province with limited evidence of human alteration. The 180,000 acre area is a diverse complex of valley sink scrub, valley saltbush scrub, interior coast range saltbush scrub, upper Sonoran subshrub scrub, non-native grassland, juniper-oak cismontane woodland, and cismontane juniper woodland and scrub (Preliminary Descriptions of the Terrestrial Natural Communities of California, Robert F. Holland, 1986). The area is one of the largest contiguous habitats for the San Joaquin kit fox (Vulpes macrotis mutica), blunt-nosed leopard lizard (Gambelia silus), giant kangaroo rat (Dipodomys ingens), and San Joaquin antelope squirrel (Ammospermophilus nelsoni). Surveys of the area have documented widespread occurrence of these threatened and endangered species. The Carrizo Plain also provides habitat for three plant species proposed for federal listing as (as of May, 1990) threatened and endangered plants: the California jewelflower (Caulanthus californicus); Hoover's wooly-star (Eriastrum hooveri); and San Joaquin wooly-threads (Lembertia congdonii). In addition, the plain contains wintering habitat for over 6,000 sandhill cranes (Grus canadensis canadensis) and recent habitat for the California condor (Gymnogyps californianus). Separated from the Valley floor by the Temblor range, the size, resource values, isolation, and relatively undisturbed nature distinguish the area as ideal for a natural area that will promote the long-term conservation of the vanishing San Joaquin flora and fauna.

The natural values of the Carrizo and Elkhorn Plains have long been recognized as key elements for the recovery of the area's threatened and endangered species. Recently, these areas have been identified in the Recovery Plans for acquisition and management for the San Joaquin kit fox, blunt-nosed leopard lizard and California condor. The Carrizo and Elkhorn Plains support some of the best populations of giant kangaroo rat.

The area also contains significant archaeological resources and historical remnants of early farming and settlement on the Carrizo Plain by European-Americans.

The Carrizo Plain Natural Area (CPNA) has been established through an interagency, intergovernment, public-private effort to enhance endangered species conservation in the San Joaquin Valley. On May 23, 1985 the US Fish and Wildlife Service (FWS), the USDI Bureau of Land Management (BLM) and California Department of Fish and Game (CDFG) signed a Memorandum of Understanding (Appendix J-A) establishing the basic objectives and a common understanding of the intent to develop the Carrizo Plain Natural Area (Macropreserve at the time of signature). The three agencies agreed to the following objectives of the project:

- the Carrizo Plain area is worthy of long term preservation and restoration to as nearly natural a condition as possible
- to strongly encourage private and other public entities to support the project
- to preserve a representative sample of the historic southern San Joaquin Valley flora and fauna
- to promote the conservation of threatened and endangered species
- to establish a mechanism to resolve conflicts resulting from intensive oil and gas development in endangered species habitat
- to provide potential sites for the reintroduction of extirpated native wildlife species.

A steering committee was formed in late 1985 that included the three signatory agencies and The Nature Conservancy (TNC), California Energy Commission (CEC), County of San Luis Obispo, County of Kern, National Audubon Society, University of California at Riverside and energy and mineral

companies with holdings in the region. This committee guided the conceptual development of the project and worked to secure Federal, State and private funding to purchase and manage the Carrizo Plain Natural Area.

In January 1988, The Nature Conservancy purchased 82,000 acres of the Carrizo Plain from Oppenheimer Industries. Soon after, the BLM was appropriated 4.1 million dollars from Congress to acquire 23,000 acres from TNC, and five million dollars in 1989 to acquire another 28,500 acres. The California Wildlife Conservation Board purchased 3,000 acres from TNC in December 1988 and 2,500 acres in 1989 to be managed by CDFG. Additional properties of the Goodwin Ranch were purchased by TNC in December 1988. The BLM has acquired another 13,000 acres through exchange or purchase. The objective of the project is to acquire the remaining private lands or purchase conservation easements from willing sellers by 1997. When all acquisitions are completed, combined ownership will be 150,000 acres by BLM, 5,000 acres by TNC, and 25,000 acres by CDFG.

The Carrizo Plain Natural Area is to be managed for the benefit of endangered species and their habitats under the principles of multiple use management. Although other resource uses such as livestock grazing, recreation, or mineral development are allowed in the Natural Area, they will be managed in a manner compatible with the conservation of endangered, threatened and sensitive species and other wildlife, the preservation of the regions significant cultural resources, and the reestablishment of natural plant communities.

This management plan is intended to direct the interagency cooperative management of the Carrizo Plain Natural Area. Although this plan focuses on initial management actions from 1989 through 1995, the guidelines, goals and objectives reflect the long-term commitment by the cooperators to manage the area in perpetuity. While different land ownership exists within the area, the management of all acquired CPNA lands will be guided by this plan. Implementation will be a cooperative effort between the agencies to complete the actions within the constraints of agency policy and mandate. This plan will be reviewed and evaluated on a yearly basis, and revised as necessary.

B. ADMINISTRATION

Guideline A: The Carrizo Plain Natural Area (CPNA) is a cooperative project that will be jointly owned and administered by state government (California Department of Fish and Game), federal government (Bureau of Land Management) and The Nature Conservancy, a private, non-profit organization. Project management efficiency will be substantially increased and costs substantially decreased by organizing overall project administration and by centralizing and consolidating on-site operations.

Objective 1: Identify contact personnel from landowning agencies to serve as liaison with CPNA project.

> **Action 1.1:** The BLM contact will be the Caliente Resource Area Manager. The TNC contact will be the Central Coast Area Manager. The CDF&G contact will be the San Luis Obispo Unit Biologist.

Objective 2: Establish a Carrizo Plain Advisory Committee.

> **Action 2.1:** A committee representing CPNA land managers, cooperating agencies, conservation organizations, and other interested public organizations will be formed to provide public input for the management of the Natural Area. This committee will serve as an advisory group to the management committee and will meet on a yearly basis, or as needed. Members

will include:

BLM Caliente Resource Area Manager
TNC Central Coast Area Manager
CDFG Region 3 Regional Manager
CDFG Natural Heritage Division Manager
USFWS Sacramento Endangered Species Office Manager
County of San Luis Obispo Supervisor
National Audubon Society
University of California, Riverside or Davis
Energy Industry Representative

Objective 3: Establish a Carrizo Plain Management Committee.

Action 3.1: The Carrizo Plain Management Committee will be made of representatives from BLM, TNC, and CDF&G, as the landowner agencies within the CPNA. This Management Committee will meet on a monthly basis to implement the management plan, formally coordinate annual management review, and to discuss matters of mutual concern. Members will include the appropriate staff from the BLM Caliente Resource Area, TNC Carrizo Plain Natural Area Manager, and the CDFG San Luis Obispo Unit Wildlife Biologist.

Objective 4: Establish a Biological Technical Committee.

Action 4.1: A technical committee comprised of staff specialists dealing with threatened, endangered and special status plant and wildlife species of the CPNA will meet semi-annually to discuss research and management issues in the Natural Area. Representatives from CDFG, BLM, TNC, FWS, California Energy Commission, California State University System, University of California System, and research biologists conducting studies in the CPNA will be included.

Action 4.2: Technical biological research and management plan and implementation review for threatened and endangered species issues will be conducted by representatives from CDFG and FWS with assistance from TNC and BLM, as needed. This group will act as a subcommittee of the Biological Technical Committee.

Objective 5: Identify on-site research and management responsibilities.

Action 5.1: The Bureau of Land Management will be the primary land manager of the CPNA, responsible for coordination of the management plan implementation, evaluations and revisions.
The Caliente Resource Area and the Bakersfield District offices maintain a staff of natural resource management personnel including wildlife biologists, range conservationists, botanists, recreation planners, archaeologists, a soil scientist and others who have been involved in the writing of this management plan and will be implementing many of the actions contained in this document. Interagency coordination will occur during all phases of implementation, evaluation and revision of this plan.

Action 5.2: For efficiency of operation, on-site research activities will be coordinated through the Carrizo Plain Natural Area Manager position administered by The Nature Conservancy. This position will represent the cooperating/landowning agencies and be responsible for implementation of the overall biological monitoring and research of the Management Plan. This position will also manage the livestock operations for TNC. Cooperative funding for the

TNC position will be explored by the cooperating agencies.

These responsibilities will initially be assumed by TNC's current Research Coordinator/Preserve Manager. Supervision and management coordination of this position will be administered through the Central Coast Office of The Nature Conservancy. As project activities and responsibilities increase, the responsibilities of this position will be periodically re-assessed.

Cultural and natural history research will be coordinated by the BLM Caliente Resource Area cultural resource specialist.

Objective 6: Provide for maintenance and facilities upkeep; range improvements, buildings, and project equipment.

Action 6.1: A BLM maintenance technician will be located at the Washburn Ranch. This position will be responsible for facility maintenance, project maintenance, and project construction. Additional BLM personnel and volunteers will be stationed at the Washburn Ranch to implement this plan.

During the first five years of the CPNA project a number of relatively large capital improvements will be necessary. These include the Painted Rock and Saucito Ranch renovations, Washburn Ranch maintenance and other general site clean-up projects. Substantial range improvements, especially fencing and water developments, will also be required to properly implement the livestock grazing program and some of the research projects discussed elsewhere in this plan. Efforts will be made to install most of these needed improvements, and handle other maintenance-related work not assumed by on-site staff, through the use of job-specific contracts with lessees, and to a lesser extent, with volunteers and agency personnel, as available. Funding for these improvements will be explored from a variety of sources including the BLM Grazing Advisory Board fee distribution, private fundraising, cost-share grants, county fish and game fines commissions and general project management monies.

Objective 7: Provide for patrol and law enforcement capabilities, and fire support services.

Action 7.1: A law enforcement ranger has been assigned to the CPNA by the Caliente Resource Area office of BLM. This position will concentrate on patrol and law enforcement on federal lands within the project area. Duties will be concentrated, but not limited to, the fall/winter/early spring high-use period when the majority of visitation is expected. Hunting seasons will require a concentrated patrol effort.

Additional patrol and law enforcement support will be provided by CDF&G wardens during hunting seasons and other high-use periods as needed to augment BLM efforts. Additional assistance from San Luis Obispo Sheriff deputies and California Highway Patrol officers may be expected within their normal patrol duties.

BLM will provide a fire prevention, patrols, and initial attack services during the fire season. The California Department of Forestry and Fire Suppression (CDFFS), may be called in on an "assist by hire" to assist in wildfire suppression. BLM will provide access for authorized project staff to the BLM communications channel for both law enforcement and fire suppression purposes.

Guideline B: Administrative facilities will be developed within the CPNA to accommodate research activities, project administration, staff housing, and public information needs.

Objective 1: Establish a research facility and on-site administrative center within the project area. (See also below under RESEARCH.)

Action 1.1: The Painted Rock Experiment Station has been created to provide lodging, storage, office, and basic lab facilities for researchers working within the CPNA. The Painted Rock Experiment Station is located near the southern end of Soda Lake, just off the main road traversing the Carrizo Plain, and is the only facility in this area of the plain that has supplied electricity and a dial telephone.

The existing ranch house was renovated during the winter of 1988-89 to accommodate these uses. Two outbuildings have been converted for additional lodging and work space.

This renovation is being funded by TNC and will include general site clean-up (including the removal of all buildings at the Sheep Camp site subsequent to historic resource recordation and evaluation), native plant landscaping for both esthetics and interpretive purposes, fencing, and the installation of experimental revegetation plots.

It is anticipated that at some point during the first five years this facility will be upgraded to accommodate escalating usage and increased project activity. Plans are being developed by TNC for this upgrade.

Action 1.2: This facility will also serve the public information center. A sign will be placed on Soda Lake Road identifying the facility. The only public access to the Painted Rock archaeological site will be through the Experiment Station. This will provide protection for the Painted Rock Cultural site which is further discussed in the CULTURAL section.

Action 1.3: Approximately 1.5 miles west of the Painted Rock Ranch headquarters is the historic Saucito Ranch house, considered to be one of the first permanent residence constructed on the Carrizo Plain, circa 1884. The Saucito house will be renovated for use as a TNC education and public outreach center. Funding for the renovation of the Saucito facility will be provided by TNC. Cultural resource recordation and evaluation will occur prior to renovation and construction.

Objective 2: Develop the Washburn Ranch as a BLM administrative site and the KCL Ranch for a recreational facility.

Action 2.1: Develop an administrative office and overnight staff housing facilities at the Washburn for BLM employees and cooperators engaged in research/administrative/patrol work on the CPNA. The site will be staffed with BLM and TNC personnel working in the project area. The need for additional docent/volunteer and or paid staffing has been recognized. The Bureau is pursuing the funding for two BLM permanent employees, a seasonal fire prevention technician and volunteers.

Action 2.2: As soon as possible, begin development of overnight camping facilities at the KCL Ranch headquarters. Provide a semi-developed recreation site that includes camping sites, toilets, interpretive and information kiosk, picnic tables, barbecue pits, etc. Figure 1 is a site plan for this facility. This development will include a self-service visitor information facility, visitor register, and access to brochures detailing CPNA regulations and use

information and maps.

The house trailer at the KCL Ranch headquarters site was moved to the Washburn Ranch in 1989 for use as overnight housing for ongoing project activities. Remaining outbuildings at the KCL site not beneficial to livestock operations in that area of the CPNA will be removed as part of general site clean up activities (Subsequent to cultural recordation and evaluation).

Objective 3: Develop a plan for the use of the Painted Rock headquarters as the eventual primary visitor information center.

Action 3.1: TNC, working with BLM recreation planners, CDFG wildlife interpretation staff, and other project staff, will develop a plan for the use of the Painted Rock Ranch as the CPNA's primary public contact point. A new structure will be constructed for this purpose. Its location just south of Soda Lake is ideal for this intended use as the vast majority of visitors to the CPNA will be attracted to the lake during the winter months when the sandhill cranes, shorebirds, and wintering raptors are concentrated at the northern end of the project area.

The plan will include the design of a visitor information center to provide information and educational and interpretive materials about the CPNA. The plan is anticipated to recommend staffing with an interpretive specialist during high use periods (winter and spring) to assist the public and will include information on the implementation of programs, tours, and guided hikes to be made available to the public during these high use periods.

Objective 4: Establish a TNC manager residence/office.

Action 4.1: The Goodwin Ranch will serve as the residence and office for the TNC CPNA manager. The Goodwin headquarters consists of a newly-renovated ranch house and several outbuildings. This facility will be maintained for this purpose by TNC.

Objective 5: Future acquired facilities will be evaluated for retention or abandonment.

Action 5.1: Ranch facilities acquired with future acquisitions will be evaluated for management needs, cultural values, and maintenance costs. Those facilities necessary for management needs and that are cost-effective to maintain, will be retained. Other facilities will be abandoned and cleaned up as necessary (with appropriate cultural evaluations).

Guideline C: The establishment of an endowment fund to provide yearly funding of research, habitat improvements, facilities improvements, public interpretation and education facilities, and volunteer personnel support would create a stable funding source above the appropriated funding levels of the cooperating agencies. Such an endowment would be administered by The Nature Conservancy in an interest-bearing account that yield management funds from the accrued interest.

Objective 1: Project cooperators (TNC, BLM, CDFG) will work together to solicit funding to establish a minimum two million dollar endowment fund for the management of the Carrizo Plain Natural Area.

Action 1.1: The Nature Conservancy and the Bureau of Land Management will explore the possibility of overseeing the creation of an endowment fund for the annual on-the-ground operating and management costs of the CPNA. This endowment would not replace base level funding by the cooperators, but would be used to supplement funds for research, habitat

improvements, facilities, environmental education, volunteer labor and other project needs. Private sector donations directed into a "Carrizo Plain Foundation" will be pursued.

C. PLANT AND ANIMAL COMMUNITY MANAGEMENT

The proper management of the plant and animal communities of the Carrizo Plain Natural Area depends not only on management action directed specifically to study or improve habitats for a particular species, but also on the integration of species management objectives into the objectives of other programs and uses. Many of the actions described in the other sections of this plan are designed to maintain or improve the habitats of the CPNA for Threatened and Endangered species. Specifically, the livestock grazing systems, habitat restoration efforts, restrictions on off-road vehicles and the designation of travel ways, limiting public uses and camping in sensitive areas, elimination of incompatible uses, and the requirement for mitigation and/or compensation for new disturbances will improve the management of the project area lands. Successful implementation and evaluations of these management prescriptions will provide suitable habitats to support viable populations of special status species and maintain or improve the natural communities of the Carrizo Plain.

Natural Communities

Guideline A: Manage the plant and animal communities to maintain long-term diversity, stability, and productivity of the natural communities representative of the Carrizo Plain Natural Area.

Objective 1: Determine the historical distributions of the plant communities of the CPNA to evaluate pristine plant associations and help determine habitat rehabilitation efforts.

Action 1.1: Initiate the historical community distribution and pollen sampling studies identified in the RESEARCH section of this plan.

Objective 2: Determine distributions of existing plant and animal communities.

Action 2.1: Acquire new aerial photography as soon as possible to map soils and current plant community distributions and provide baseline information for future monitoring.

Action 2.2: Conduct plant community distribution studies as described in the RESEARCH section of this plan.

Action 2.3: Compile animal occurrence and abundance information from ongoing monitoring and research studies to document wildlife community seasonal composition, distributions, and habitat relationships.

Objective 3: Rehabilitate recently cultivated lands to natural composition, where practical and deemed appropriate.

Action 3.1: Conduct a soil survey of the CPNA as described in the SOIL AND WATER MANAGEMENT section to determine rehabilitation potential and previous community distributions.

Action 3.2: Initiate vegetation rehabilitation studies to determine proper methods and priorities for restructuring cultivated lands to natural communities.

Action 3.3: Collect native plant seed from the CPNA to be used in rehabilitation efforts. Seed

collection will begin as soon as possible. Seed will be stored at the Washburn Ranch under BLM direction or other sites, as appropriate.

Action 3.4: Initiate habitat rehabilitation following the historical and existing plant community studies, rehabilitation test plot evaluations, and collection of on-site plant seed. Livestock grazing will not be allowed on rehabilitated areas until plants are adequately established following the seeding efforts. Temporary fencing may be employed to protect the reseeded areas.

Action: 3.5: The plant propagation facility at the Painted Rock research headquarters will be used to grow containerized plants from seed collected within the CPNA.

Objective 4: Maintain and improve the plant and animal communities of the CPNA to support their potential natural composition.

Action 4.1: Implement those management actions (livestock grazing systems, OHV restrictions, travel route designations, etc) identified in this plan to improve or maintain community structure and composition.

Action 4.2: Monitor plant communities as described in the RESEARCH and GRAZING sections to determine condition and trend and evaluate management effectiveness.

Featured Species Management

Featured species include those plants and animals that are given special status under State or Federal law, regulation, or policy. These species include threatened, endangered or sensitive species, game species, furbearers, or protected species for which special legislation exists. They are given special consideration in planning, management and monitoring of the CPNA.

Featured species - Plants

Guideline A: Maintain or improve the long-term habitat quality of the CPNA to support healthy (viable) populations of the special status plants in perpetuity. Gather pertinent ecological (biological) information to better manage the habitats of these plants and better understand their population ecology. Implement the Recovery Plan actions identified for the CPNA in the individual Federal Recovery Plans as the plans are completed.

Sixteen species of special status or sensitive plant species have been identified to date in the Carrizo and Elkhorn Plains. These species differ in their status between Federal and State endangered species lists, CNDDB priority, and CNPS status. In order to most efficiently use our limited management and research resources, these species have been placed into two management priorities.

First Priority Species

First priority species are those taxa that have been listed by the State of California or the USFWS as threatened or endangered, are "proposed" for listing by either the State or Federal agencies, or are considered of special management need. Taxa may become first/second priority species as the Biological Technical Committee deems appropriate.

Caulanthus californicus	FE/CE/G1S1.1/1B	California jewelflower

Eriastrum hooveri	FT/N/G2S2.2/1B	Hoover's woolly-star
Lembertia congdonii	FE/N/G2S2.2/1B	San Joaquin Valley woolly-threads
Atriplex vallicola	C2/N/G1S1.1/1B	Lost Hills saltbush

(Status is depicted as: Federal/State/CNDDB/CNPS)

Objective 1: Determine the detailed distributions and abundance of these first priority species in the CPNA.

Action 1.1: Conduct the plant community and special status plant surveys contracted to the CEC by CDFG, BLM and TNC. Refer to the RESEARCH section of the plan for survey details.

Action 1.2: As needed, conduct additional surveys of these plant species to document distributions and populations.

Objective 2: Conduct life history and ecological research on these high priority species to determine management guidelines and better understand their biological requirements.

Action 2.1: Following CEC initial surveys, evaluate known biological information on these species, and where necessary, initiate relevant research.

Objective 3: Initiate habitat rehabilitation, protective management and population enhancement efforts to augment populations of these species where necessary. Attempt experimental reintroductions within the historic range when and where feasible.

Action 3.1: Construct fences or place barriers to protect vulnerable sites and populations from livestock, OHVs or other threats, as necessary. This work will begin in the 1989 growing season.

Action 3.2: Based on research studies to determine management and enhancement protocols, establish new colonies of these species and select sites for reintroduction or population enhancement.

Objective 4: Monitor these species to determine population trends and evaluate management effectiveness.

Action 4.1: Develop species specific monitoring plans for the first priority species in consultation with TNC, BLM, CDFG, and CNPS botanists.

Action 4.2: Monitor populations and habitats of these first priority species on a yearly basis.

Second Priority Species

Second priority species are listed as Federal Candidates (1 and 2), CNPS list 1B species, or taxa of special management concern by the CPNA Technical Committee.

Amsinkia furcata	C2/N/N/L.1B	forked fiddleneck
Antirrhinum ovatum	C2/N/1.1/L.1B	oval-leaved snapdragon
Delphinium recurvatum	C2/N/N/L.1B	recurved larkspur
Eriogonum gossypinum	C3C/N/N/L.4	cotton-flowered buckwheat
Eriogonum temblorense	C2/N/N/L.4	Temblor buckwheat

Layia munzii	N/N/N/L.3	Munz's tidy-tips
Atriplex cordulata	C2/N/N/L.3	heart-leaved saltbush
Delphinium gypsophilum ssp. gypsophilum	N/N/N/L.4	gypsum-loving larkspur
Hemizonia pallida	N/N/N/L.4	Kern tarplant
Hollisteria lanata	C2/N/N/L.4	Hollisteria
Lepidium jaredii	N/N/N/L.4	Jared's pepper-grass
Trichostema ovatum	N/N/N/L.4	San Joaquin bluecurls

Objective 5: Determine the distributions of these second priority species in the CPNA.

Action 5.1: Conduct the plant community and special status plant surveys contracted to the CEC by CDFG, BLM and TNC. Refer to the RESEARCH section of the plan for survey details.

Objective 6: Monitor these species to determine population trends and evaluate management effectiveness.

Action 6.1: Monitor populations and habitats of these second priority species as deemed necessary by the Technical Committee.

Action 6.2: Second priority species status and monitoring will be reviewed annually by the Technical Committee. Changes in status will be evaluated.

Featured Species - Animals

Guideline B: Maintain or improve the long-term habitat quality of the CPNA to support healthy (viable) populations of the special status animals in perpetuity. Gather pertinent ecological (biological) information to better manage the habitats of these animals and better understand their population ecology. Implement the Recovery Plan actions identified for the CPNA in the individual Federal and State Recovery Plans.

San Joaquin kit fox (Vulpes macrotis mutica)

Objective 1: Provide suitable habitat to support viable populations of SJKF within the CPNA.

Action 1.1: Implement those management actions (livestock grazing systems, OHV restrictions, travel route designations) identified in this plan to improve Threatened and Endangered species habitat.

Action 1.2: Prohibit the use of rodenticides in the CPNA without agreement from the cooperating agencies.

Objective 2: Conduct research studies in the CPNA to gather biological information to better understand SJKF ecological relationships and develop proper management guidelines.

Action 2.1: Continue studies identified in the RESEARCH section of this plan to inventory for existing distributions, identify occupied and potential habitat, evaluate livestock grazing effects, describe SJKF habitat use and evaluate the relationship between coyotes and SJKF.

Objective 3: Enhance populations of SJKF in the CPNA through habitat restoration projects identified as a result of the research studies.

Action 3.1: Evaluate research results as they become available to determine methods and design of habitat rehabilitation.

Action 3.2: Rehabilitate previously cultivated lands to natural vegetation communities as described in the rehabilitation section of this plan.

Objective 4: Determine optimum management techniques to maintain population objectives and provide high quality habitats.

Action 4.1: Evaluate management actions as they affect kit fox population trends and habitat use. Employ data and analyses from research information to better manage the CPNA for viable SJKF populations.

Objective 5: Develop protocols to monitor SJKF populations.

Action 5.1: Develop population and habitat monitoring techniques to effectively and accurately detect changes in kit fox populations, distributions and habitat use. Develop initial monitoring methods based on the SJKF Recovery Plan, and update the techniques as new research or monitoring information becomes available. Gather information necessary to conduct a population viability analysis (pva) prescribed in the Recovery Plan.

Blunt-nosed leopard lizard (Gambelia silus)

Objective 1: Provide suitable habitat to support viable populations of BNLL within the CPNA.

Action 1.1: Implement those management actions (livestock grazing systems, OHV restrictions, travel route designations) identified in this plan to improve Threatened and Endangered species habitat.

Objective 2: Conduct research studies in the CPNA to gather biological information to better understand BNLL ecological relationships and develop proper management guidelines.

Action 2.1: Continue studies identified in the RESEARCH section of this plan to inventory for existing distributions, identify occupied and potential habitat, evaluate livestock grazing effects, evaluate human disturbances such as OHV effects (and pesticides if used) and describe BNLL habitat use.

Objective 3: Enhance populations of BNLL in the CPNA through habitat restoration projects identified as a result of the research studies.

Action 3.1: Evaluate research results as they become available to determine the feasibility of BNLL reintroductions and the methods and design of habitat rehabilitation.

Objective 4: Develop protocols to monitor BNLL populations.

Action 4.1: Develop or employ population and habitat monitoring techniques to effectively and accurately detect changes in blunt-nosed populations, distributions and habitat use. Develop initial monitoring methods, and update the techniques as new research or monitoring information becomes available.

Giant kangaroo rat (Dipodomys ingens)

Objective 1: Provide suitable habitat to support viable populations of GKR within the CPNA.

Action 1.1: Implement those management actions (livestock grazing systems, OHV restrictions, travel route designations) identified in this plan to improve Threatened and Endangered species habitat.

Action 1.2: Prohibit the use of rodenticides in the CPNA without agreement from the cooperating agencies.

Objective 2: Conduct research studies in the CPNA to gather biological information to better understand GKR ecological relationships and develop proper management guidelines.

Action 2.1: Continue population and habitat use studies identified in the RESEARCH section to inventory for existing distributions, gather demographics data to model population dynamics and determine viable population sizes, establish inventory methods, determine population densities at different site qualities, establish revegetation and reintroduction protocols, evaluate the effects of livestock grazing, evaluate wildfire and prescribed burning and determine management practices and guidelines.

Objective 3: Develop protocols to monitor GKR populations.

Action 3.1: Develop population and habitat monitoring techniques to effectively and accurately detect changes in giant kangaroo rat populations, distributions and habitat use. Develop initial monitoring methods, and update the techniques as new research or monitoring information becomes available.

Objective 4: Enhance populations of GKR in the CPNA through habitat restoration and reintroduction projects identified as a result of the research studies and recovery plan.

Action 4.1: Evaluate research results as they become available to determine the feasibility of GKR reintroductions and the methods and design of habitat rehabilitation.

San Joaquin antelope squirrel (Ammospermophilus nelsoni)

Objective 1: Provide suitable habitat to support viable populations of SJAS within the CPNA.

Action 1.1: Implement those management actions (livestock grazing systems, OHV restrictions, travel route designations) identified in this plan to improve Threatened and Endangered species habitat.

Action 1.2: Prohibit the use of rodenticides in the CPNA without agreement from the cooperating agencies.

Objective 2: Conduct research studies in the CPNA to gather biological information to better understand SJAS ecological relationships and develop proper management guidelines.

Action 2.1: Continue population and habitat use studies identified in the RESEARCH section to inventory for existing distributions, gather demographics data to model population dynamics and determine viable population sizes, establish inventory methods, determine population

densities at different site qualities, establish revegetation and reintroduction protocols, evaluate the effects of livestock grazing, evaluate wildfire and prescribed burning and determine management practices and guidelines.

Objective 3: Enhance populations of SJAS in the CPNA through habitat restoration and reintroduction projects identified as a result of the research studies.

Action 3.1: Evaluate research results as they become available to determine the feasibility of SJAS reintroductions and the methods and design of habitat rehabilitation.

Objective 4: Develop protocols to monitor SJAS populations.

Action 4.1: Develop population and habitat monitoring techniques to effectively and accurately detect changes in antelope ground squirrel populations, distributions and habitat use. Develop initial monitoring methods, and update the techniques as new research or monitoring information becomes available.

California Condor (Gymnogyps californianus)

Objective 1: Maintain or improve habitat conditions to provide suitable habitat for future condor use.

Action 1.1: Implement the Condor Recovery Plan recommendation that land managers and owners leave dead livestock on rangelands to provide food for condors.

Action 1.2: Implement the Condor Recovery Plan recommendation that land management and resource agencies reestablish and enhance formerly extirpated native ungulate populations on historical foraging grounds.

Lesser sandhill cranes (Grus canadensis canadensis)

Objective 1: Provide suitable habitat to support the large number of sandhill cranes that inhabit the CPNA during the winter season.

Action 1.1: Initiate monitoring studies to determine the number of cranes wintering in the Soda Lake area and determine habitat use and preference.

Action 1.2: Provide suitable loafing and roosting areas near Soda Lake. Continue limited crop production on suitable grain fields to be used as crane foraging areas. Evaluate the need to continue this practice as crane monitoring information becomes available.

Action 1.3: Evaluate the artesian wells on the American Ranch for improvement potential for sandhill use. The water at this location would be used to spread or flood shallow areas around the wells. Protect as needed.

Short-nosed kangaroo rat (Dipodomys nitratoides brevinasus)

Objective 1: Provide suitable habitat to support viable populations of SNKR within the CPNA.

Action 1.1: Implement those management actions (livestock grazing systems, OHV restrictions, travel route designations) identified in this plan to improve Threatened and

Endangered species habitat.

Action 1.2: Prohibit the use of rodenticides in the CPNA without agreement from the cooperating agencies.

Objective 2: Conduct research studies in the CPNA to gather biological information to better understand SNKR ecological relationships and develop proper management guidelines.

Action 2.1: Continue population and habitat use studies identified in the RESEARCH section to inventory for existing distributions and to determine management practices and guidelines. The research will gather demographics data to model population dynamics and determine viable population sizes, determine the effects of livestock grazing practices, and recommend management protocols.

Action 2.2: Monitor SNKR populations to evaluate management effectiveness.

Raptors golden eagles, buteo hawks, falcons, owls

Objective 1: Provide adequate habitat quality to support the various species of raptors found in the area.

Action 1.1: Inventory raptor nesting occurrence in the CPNA and monitor seasonal habitat use and numbers of raptors.

Action 1.2: Initiate winter drive route monitoring surveys, and nesting inventories in the spring.

Action 1.3: Evaluate raptor use patterns and determine if additional management guidelines need to be developed for raptor management.

Pronghorn (Antilocapra americana)

Objective 1: Support a viable population of pronghorn antelope in the CPNA that provides opportunities for casual viewing, a food source for reintroduced California condors, and managed harvest, within the grazing capacity and in concert with the other plant and animal objectives of the area.

Action 1.1: Continue monitoring studies to determine seasonal distributions, habitat use, population dynamics and management effectiveness.

Action 1.2: Evaluate monitoring data to determine if some fences need to be modified or water sources developed.

Action 1.3: Initiate intensive studies to determine population objectives and management prescriptions for the CPNA. Additional data should include age structure, productivity, survivorship, seasonal diets, forage capacity, and potential habitat improvements.

Action 1.4: Continue reintroductions of pronghorn, as needed and available, to meet population objectives determined by studies and CDFG herd management plan.

Tule elk (Cervus elaphus nannodes)

Objective 1: Provide suitable habitat for the tule elk use that occurs in the CPNA.

Action 1.1: Continue monitoring of tule elk movements and habitat use to determine use patterns in the CPNA and identify habitat requirements and potential habitat improvements. Allow additional transplants consistent with other wildlife and plant community objectives, including the development of a tule elk population which could provide a food source for reintroduced California condors.

Mountain plover (Charadrius montnaus) C2

Objective 1: Determine mountain plover seasonal and habitat use patterns in the CPNA.

Action 1.1: Implement yearly monitoring studies to document the number of mountain plovers wintering in the area and their habitat use patterns.

Long-billed curlew (Numenius americanus) C2

Objective 1: Determine curlew seasonal and habitat use patterns in the CPNA.

Action 1.1: Implement yearly monitoring studies to document the number of curlews wintering in the area and their habitat use patterns.

Upland Game Species
California quail (Lophortyx californicus)
Chukar (Alectoris graeca)
Mourning dove (Zenaidura macroura).
Desert cottontail (Sylvilagus auduboni)

Objective 1: Provide adequate habitat quality to support sustained populations of harvestable upland game species found in the CPNA.

Action 1.1: Implement the grazing management systems described in this plan. The systems are designed to maintain or improve plant communities that will provide plant cover for California quail, mourning doves, and chukar.

Action 1.2: Improve, develop or maintain water sources in the foothill areas that will support upland game species. Specific developments will be identified in yearly coordination meetings between the CPNA managers.

Objective 2: Provide opportunities for upland game hunting that are compatible with the goals and objectives of this plan.

Action 2.1: Access for upland game hunting will be those designated routes identified in the Recreation section of this plan. The shrub communities located in the Caliente Mountains and Temblor Mountains will be available for upland game hunting activities.

Wild pigs

Objective 1: Control feral pigs from within the CPNA.

Action 1.1: Limited numbers of feral pigs have been reported within the CPNA. Commensurate with the small scope of the problem, feral pigs will be hunted within the

project area. Populations and habitat will be monitored to quickly identify potential problem areas and to take appropriate action to lessen impacts from wild pigs.

D. CULTURAL RESOURCES

Guideline A: The Carrizo Plain Natural Area contains significant prehistoric and historic resources. Management of these resources will focus on protection and, where appropriate, on providing an interpretative and educational experience.

Objective 1: Develop a site plan for Painted Rock that includes protective measures to deter vandalism, pot hunting and other forms of disturbance while still allowing controlled public access to the site as part of the interpretative and educational plan.

Action 1.1: During the winter of 1989-90 the access road between Painted Rock and the road to Selby Cow Camp (T32S, R20E, Section 8) was blocked by a locked gate in the pasture fence along the Selby Road. This leaves the road directly through the Painted Rock Experiment Station as the only public road access to the Rock. Until a public access plan is completed, the road to Painted Rock through the Experiment Station should remain open. If deemed necessary for protection of the site or other resources, the public road to the Painted Rock parking area will be temporarily closed.

Action 1.2: It is approximately three miles along the road from the Experiment Station to the Painted Rock site. The road alignment has been changed to angle off toward the foothills to the west and terminate in a new parking area, requiring visitors to access the Rock on foot from this point. The parking area has been constructed behind a small knoll, out of the viewshed from the Rock itself. The parking area has been delineated with a low profile post and cable fence to deter OHV and cattle grazing within the Painted Rock enclosure. A foot trail leads from the parking area to the Rock. Long term planning may include handicapped access and interpretative information about the cultural and natural resources in the vicinity. The access road to the Rock will be closed, thereby leaving administrative to the Rock via the Selby Road.

Action 1.3: The fence currently in place adjacent to the rock will be taken down in 1990-1991 and a much larger enclosure constructed with a pasture cross fence one-half mile to the north. This enclosure will exclude livestock grazing, placing the Rock and its contiguous midden in a more open context on the plain. Emphasis will be on the site holistically, rather than a mere rock art site.

Action 1.4: An interpretative and access plan will be developed in the summer of 1991. TNC personnel and BLM archaeologists will work with the Santa Barbara Museum of Natural History and/or other appropriate organization on the development of an interpretative and public access plan. This plan will include the production of an educational brochure on Painted Rock and the other important nearby archaeological sites (excluding site specific locations) as well as design and content for an educational kiosk at the parking area or other area deemed appropriate in the vicinity. The kiosk will present information on Native American use of the Carrizo Plain; e.g. important plant foods and their preparation, use of milling features, and the significance of Chumash and other Native American rock art in the region.

Several low profile numbered posts may be installed along the public access trail to be used in conjunction with the interpretative brochure on cultural and natural resources.

Action 1.5: Prepare in conjunction with an archaeological or conservator specialist, a grant proposal submission requesting funds to conduct a feasibility study for partial restoration of Painted Rock art; i.e., removal of painted, scratched, and carved graffiti.

Action 1.6: Prepare document for a grant proposal submission requesting funds to conduct a feasibility study to determine what other forms of deterioration or impacts are affecting the integrity of the rock art elements; i.e., weathering/erosion, exfoliation, biological, dust, mineral deposits. Recommendation on sound measures to deter or prevent further impacts to the sites by natural conditions shall be identified; i.e., silicon drip control to deter bird excretions on the rock art panels.

Action 1.7: Prepare nomination documents of the Painted Rock archaeological cluster area to the National Register of Historic Places as a mini-district. This status would make the Rock and other sites in the vicinity eligible for federal funds to assist in site restoration, preservation, and protection from vandalism and natural deterioration.

Action 1.8: Develop a public use plan for Painted Rock which will allow controlled or regulated use to the site while still providing preservation of the resources. The plan should incorporate legitimate user groups and guidelines to preserve the site's integrity. In addition to educational and scientific archaeological and rock art interest groups, there are other special interest groups such as the contemporary Native Americans and various natural history groups. In conjunction with group interest, the Bureau and The Nature Conservancy propose to conduct public educational tours to Painted Rock as part of the interpretative management plan (see Action 1.4). The public use plan will identify legitimate non-destructive uses, open and closed to use periods, reasonable group capacity, and guidelines for protection and conservation of the resource. Permits, when warranted, will be required for group visitations.

Objective 2: Develop a management plan for other known and newly discovered cultural sites within CPNA that provides for their protection and, where appropriate, limited public access and interpretation.

Action 2.1: Develop a cooperative or volunteer agreement with Santa Barbara Museum of Natural History or some other interested educational institution to conduct a cultural inventory and limited site testing/evaluation of cultural resources within and adjacent to the Natural Area. This information will be used to develop a management plan for the archeological resources within the CPNA, including the development of additional interpretative sites, public use and access restrictions, and closed areas as deemed appropriate.

Action: 2.2: The Selby Road was realigned in the summer of 1989 to reroute public access away from the Selby Rocks cultural area. This road provided public access to the ARCO well site near Selby Cow Camp and access into the Calientes. The road will direct traffic and visitation away from the Selby Rock sites. The ARCO site has been established as a parking area. Foot and bicycle access to the Caliente Mountains will be provided at this location. Existing and newly constructed fences line each side of the public access road to deter uncontrolled site visitation and livestock impacts to significant cultural sites in the Selby and Painted Rock vicinity. Access to Caliente Mountain will be allowed beyond the ARCO parking area from mid-August to late September (deer season) and the third week of October through early December (bird season until weather closure).

Action 2.3: Prepare in coordination with an historic archaeologist or historian at a museum or educational institution or group, a cooperative or volunteer agreement to conduct historic

resource inventories and limited site testing necessary to evaluate the potential significance of the site(s).

This information will be used to develop a management plan for historic resources within the CPNA and for interpretive historic development on the Plain.

Action 2.4: Develop a cooperative or volunteer agreement with a museum or educational institution or group to systematically compile historic photographs of historic and prehistoric sites on the Carrizo Plain.

Action 2.5: Develop a cooperative or volunteer agreement with a museum or educational institution or group to conduct an oral history of the Carrizo Plain.

Action 2.6: In regards to the curation of archaeological and historical resources at a public visitation center on the Carrizo Plain, the Bureau intends to conduct a feasibility study to determine if appropriate facility and curation standards can be met. The project will be coordinated with the Santa Barbara Museum of Natural History. The potential donation of a private collection to the Museum and possible loan curation agreement between the Museum and BLM has been proposed.

Action 2.7: Due to the number of large historic farming and ranching artifact implements dispersed on various ranches within the CPNA, the BLM proposes to systematically relocate the artifacts endangered by vandalism and deterioration to a central location such as the BLM visitor/or administrative center. Such artifacts will be properly inventoried, secured and sheltered from weathering as deemed appropriate. An outdoor exhibit will be used for public education and interpretative purposes. Collection of items of 50 years of age or older will be done in accordance to Section 106 of the National Historic Preservation Act.

Action 2.8: Establish a photographic monitoring program of selected significant cultural sites which have previously or are currently endangered by natural deterioration and vandalism. As part of the monitoring of Painted Rock (SLO-79), an additional monitoring program on visitor use, potential impacts, and facility needs should be established.

Guideline B: Solicit and encourage further research in the archeological resources of the Carrizo Plain Natural Area.

Objective 1: Identify important areas of prehistoric use to assist in the formulation of future management planning.

Action 1.1: Develop agreements with the Santa Barbara Museum of Natural History or some other educational institutions to continue cultural resource inventory and limited testing of archaeological resources within and adjacent to the CPNA. This will include areas such as the post pleistocene lake margins, and areas along the Caliente and Temblor foothills.

Objective 2: Identify historic impacts to Painted Rock and other known sites in the CPNA. Implement mitigation, restoration and stabilization as appropriate.

Action 2.1: Working with interested archaeological consultants and the Santa Barbara Museum of Natural History, prepare a grant proposal for submission to request appropriate funding to conduct research oriented test excavation on the midden areas encompassing the Rock as well as "overburden" within Painted Rock. Areas previously disturbed by unauthorized

excavations or natural erosion will be rehabilitated and stabilized as deemed appropriate. Additional known sites impacted in the CPNA should be treated in a similar fashion as Painted Rock and as warranted to the particular site condition and significance.

E. NATURAL HISTORY

Within the CPNA there are two areas previously designated as Area of Critical Environmental Concern (ACEC); the Soda Lake and Elkhorn Plain ACECs. The CPNA also contains an excellent exposure of the San Andreas Fault Scarp which has been designated a Research Natural Area and a National Natural Landmark on public land outside the CPNA. The area also contains terrestrial and marine paleontological resources which are mostly found on the eastern flank of the Caliente Range.

Guideline A: Protect and manage CPNA paleontological and geologic landmarks for their scientific and educational values.

Objective 1: Develop a management and interpretative plan for the significant natural history values in the CPNA.

Action 1.1: Designate the San Andreas Fault within the CPNA as a Research Natural Area and a National Natural Landmark.

Action 1.2: Amend the Soda Lake and Elkhorn Plain ACECs to include the entire CPNA under one ACEC plan.

Action 1.3: Incorporate the significant natural history values as part of the public interpretative and visitor use management program.

Action 1.4: Develop a cooperative or volunteer agreement with an appropriate educational institution or group to conduct research and inventory of paleontological resources along the base of the Temblor and Caliente Range within the CPNA.

F. SOIL AND WATER MANAGEMENT

The soil, water and air program is responsible for the acquisition of soil, surface and ground water, and air quality information in the CPNA. This program also manages these resources by inventory, monitoring and implementing management actions that protect or benefit these values. Soils information is the foundation for understanding plant community distributions, species autecology, and plant and wildlife habitat rehabilitation potential. Water resources are critical in the arid environments of the CPNA and the identification and protection of water sources is a key management concern in this plan.

Guideline A: Develop a soils data base to support habitat rehabilitation projects, determine existing and potential plant community distribution, evaluate edaphic influences, and develop ecological site descriptions.

Objective 1: Conduct an order three soil survey of all lands within the Carrizo Plain Natural Area. Conduct and order two soil survey where needed to support rehabilitation efforts or provide information for special plant communities.

Action 1.1: Acquire new aerial photography for soil survey mapping.

Action 1.2: Initiate an order three soil survey on all acquired lands (80,000 acres). This survey will be a continuation of the unfinished USDA Soil Conservation Service soil inventory for BLM lands in San Luis Obispo County, Carrizo Plain area, initiated in 1984. All acquired lands will be surveyed and reported at national standards. This new survey will be conducted under a BLM contract over a two year period. Soil information on private lands may be completed by the SCS or the contractor through coordination with SCS. Digitize soil maps into the BLM GIS data base within one year of field completion.

Action 1.3: Identify special management areas in need of order two soils information and identify special soil survey data elements prior to initiation that will be needed for specific research needs, wildlife habitat use, or plant community relationships.

Action 1.4: Identify erosion potential and current erosion problems during the soil survey and resource management. Develop soil hazard GIS maps to be used in project planning and development.

Action 1.5: Inventory watershed degradation areas during the soil survey and resource management work. Identify areas in need of rehabilitation or stabilization to be included in rehabilitation efforts.

Guideline B: Protect springs and seeps and the associated wetland communities to provide reliable water and to support native plant and animal communities at their full potential.

Objective 1: Inventory and protect all springs and water sources for habitat condition, water quality, and plant community composition and wildlife use.

Action 1.1: Conduct a spring and water source inventory to document plant species composition, water flows, and water quality on acquired springs and seeps in the CPNA.

Action 1.2: Initiate baseline monitoring studies on all inventoried water sources during the inventory. Conduct periodic monitoring of identified springs and seeps to determine plant community composition, trends, and management effectiveness.

Action 1.3: Evaluate the water source inventory information to determine the need for habitat protection, habitat improvement, or water source development. Enhance those areas that are in need of protection through fencing, water distribution to adjacent uplands, and seeding or transplants. Spring improvements will be designed to maintain or improve wetland conditions.

Guideline C: Identify and remove any hazardous materials on public and acquired lands in the CPNA.

Objective 1: Complete an inventory of all acquired lands prior to acquisition to identify and contain any hazardous materials in the CPNA. Maintain field reconnaissance to identify, contain and remove any illegally dumped hazardous materials in the CPNA.

Action 1.1: Inventory all facilities and acquired lands to identify any hazardous materials. Develop necessary actions to contain and/or remove hazardous materials per BLM policy and regulations to an approved disposal site.

Action 1.2: Identify illegally dumped hazardous materials during field reconnaissance and

management activities and notify BLM hazardous materials coordinator and implement actions specified in the BLM Hazardous Materials Spill Contingency Plan in the event of such activities.

G. RECREATION AND ACCESS

The Carrizo Plain Natural Area provides the public not only with new opportunities to enjoy and learn about the unique natural features found in the area, but with new opportunities for associated recreation. Nonconsumptive uses such as bird-watching and observing the several thousand sandhill cranes and long-billed curlews, nature photography, wildflower touring, Painted Rock visits and weekend country drives have been a part of the Carrizo picture for many years. The recent reintroduction of the native tule elk and pronghorn antelope have brought new interest and additional visitors. There is a rapidly growing demand for wild pig hunting (now the number one game animal in California) in the Central Coast region that has increased hunter activity in the Carrizo area from the fall deer and quail seasons to a year-long stream of activity. The general increase in recreational off highway vehicle recreation, motorcycles and family 4X4s are also showing their signs of use in the Carrizo.

All of these recreation-related activities create new challenges for the management of the CPNA and the protection of the sensitive biological and cultural resources that are the focus of the project. Within the first year of the Natural Area land acquisitions, there has been an observed increase in visitation and public use. Private lands that were here-to-fore closed to the public are now perceived as new recreational opportunities. It will be a critical element of this management plan to prevent new or eliminate existing incompatible public use and recreation activities.

Guideline A: Provide recreational opportunities compatible with the sensitive resources of the CPNA.

Objective 1: Limit vehicle travel to designated roads.

Action 1.1: Vehicles in the CPNA are restricted to designated routes of travel, except for administrative use, to prevent unwanted use patterns. The existing county roads, key access points and well-established roads would be open to the public. Administrative access for agency, research, and livestock management, and authorized use would continue. Only designated roads will remain open to the public. The appropriate legal public notices will be initiated as soon as possible. BLM Rangers will provide law enforcement of these road closures.

Action 1.2: Inventory the roads in the CPNA to provide information for the design of a transportation plan for the CPNA that designates open roads, identifies roads to be eliminated and allows for seasonal access to sensitive resource locations:

Open Roads: These roads are open on a year-round basis. Roads will be designated as primary or secondary.

Closed Roads: These roads are being eliminated for resource protection and enhancement.

Seasonal Access: These roads are open from mid August (deer season) to February 15.

Designated Parking Areas: Parking areas available in high use areas.

Administrative Access: Access for BLM, TNC, CDFG, authorized research, and lessees.

Action 1.3: A new road was constructed into the Selby Cow Camp in the Summer of 1989 to reduce impacts to the cultural resources of the Painted Rock and Selby Rocks. The road provides seasonal access into the Caliente Mountains and year-round access to a parking area at the old Arco well site near the Selby Camp.

Action 1.4: Closed roads will be posted and barricaded as appropriate. Transportation routes will be identified and signed to aid the public in CPNA travel. Travel routes will be posted.

Action 1.5: Road maintenance will be commensurate to the designation of primary or secondary access in the CPNA.

The level of maintenance will consider the sensitive resources of the area and will protect habitats to the maximum extent possible while providing for public safety. Road drainage ditches that provide habitat for endangered animals will not be maintained with heavy equipment unless absolutely necessary. San Luis Obispo County will maintain County roads while the BLM will maintain other CPNA roads as needed. Appendix J-C describes maintenance procedures for the CPNA.

Objective 2: Provide camping opportunities that are compatible with the sensitive resources of the CPNA.

Action 2.1: Overnight camping for a maximum of 14 days in a 30 day period will be allowed in the CPNA only in following areas (MAP 8):

1. The designated camping area at or surrounding the KCL ranch and at the Arco parking area.
2. The group camping area at the Goodwin Ranch. This facility will be available by arrangement with TNC.
3. Identified camping areas in the foothills of the Temblor Range.

Action 2.2: Develop overnight camping facilities at the KCL ranch headquarters. Provide a developed recreation site that includes camping sites, toilets, interpretive and information kiosk, picnic tables, and barbecue pits etc. A site plan for this facility will be developed. The BLM will support a "snowbird" campground host at the facility from October through April.

Action 2.3: Develop a group camping facility near the Goodwin Ranch and Soda Lake for organized group visits to be arranged through The Nature Conservancy project manager.

Action 2.4: Gather recreation and camping use information on an ongoing basis during high use periods (December 1 through April 30) within the CPNA to determine use patterns, visitor activities, and visitor preferences. The following information will be collected:

1. Location of camps.
2. Number in party.
3. Length of stay.
4. Recreational activities.
5. Camping preferences.
6. Travel in CPNA.

7. Participation in guided tours and programs.

Objective 3: Manage hunting recreation in a manner compatible with the goals and objectives of this plan and the sensitive resources of the CPNA.

Action 3.1: Hunting recreation will be allowed per Federal and State regulations in the CPNA except for the area designated around Soda Lake and the area from Soda Lake down to the San Diego Road, from the Soda Lake Road to the Elkhorn Road and all facilities and specially designated study and management areas will be closed to shooting of firearms.

Action 3.2: Evaluate hunting recreation in the CPNA to determine if conflicts exist with other recreational activities and the sensitive resources of the area. Gather yearly visitor use information and compile incident reports from the BLM ranger and CDFG wardens to determine if problems exist. Evaluate problems on a yearly basis.

Action 3.3: Develop hunter access and parking facilities at the American Ranch in section 23, T.31S, R.19E., the Arco well site in Section 21. T.32S, R.20E and the KCL ranch .

Action 3.4: Develop a hunter information guide with maps showing both off-limits and open hunting areas, explanations of the objectives of the CPNA, and guidelines about the use of the Natural Area.

Objective 4: Manage public use of the CPNA through patrol and visitor contact by BLM, CDFG and TNC personnel.

Action 4.1: Conduct regular visitor patrol and contacts in the high use visitor season (December through April) to maintain agency visibility, correct improper public activities, and enforce Federal and State regulations pertaining to the public use of the CPNA.

Objective 5: Provide public awareness of the CPNA and the available facilities, interpretive sites, and travel routes through a high visibility signing program in the area.

Action 5.1: CPNA boundary signs have been constructed at the major road locations identified. The signs were constructed within the BLM design specifications.

Action 5.2: Place facilities identification signs in the appropriate locations to aid the public in their activities.

Objective 6: Allow Special Use Recreation Permits compatible with the goals and objectives of this plan.

Action 6.1: Special Use Recreation Permits may be granted for activities in the CPNA that are consistent with the management plan. Permits will be administered by the BLM with coordination from CPNA cooperators.

Guideline B: Provide a setting for environmental education that will help the public understand and appreciate the natural values of the CPNA.

Objective 1: Develop a public information center at the Painted Rock Ranch that will enhance the educational and recreational enjoyment of CPNA visitors.

Action 1.1: Develop the Painted Rock Ranch, as described in the Administration section of this plan, as the primary visitor information center to provide information and education materials and programs about the CPNA. This facility should be staffed with a visitor information person during high use periods to assist the public. Interpretive tours of Soda Lake can be started from this location. A cooperative agreement between the BLM and TNC will be developed to administer this program.

Action 1.2: Develop the KCL Ranch camping facility as described in this plan. The facility will include a visitor information kiosk, visitor register, CPNA regulations and maps. Interpretive information will also be included.

Objective 2: Develop interpretive trails and sites to help the public understand the unique features and sensitive resources of the CPNA.

Action 2.1: Develop an interpretive plan to detail trails, sites, tours, and brochures to explain the resources of the CPNA. This plan will be initiated by the BLM, TNC and CDFG.

Action 2.2: Develop a self-guided tour of the Soda Lake area to include locations that identify the dominant plant species, wetland values, lake shrimp, dominant physical features and processes that occur in that area. The route will be designed to have minimal disturbance to sandhill cranes during their use of Soda Lake.

Action 2.3: Develop a self-guided tour of the elkhorn plain that identifies the wildlife, plant and ecological values that occur in that area.

Action 2.4: Develop an interpretive site in Section 11 near Soda Lake as described in the first-year plan.

Action 2.5: Develop an interpretive site of the San Andreas Rift Zone at Section 26 NWSE, T 11N, R25W, SBBM in 1991. Develop a similar site in Section 28, SENW, T31S, R21E, MDBM if permission can be obtained from the private landowner, or if the lands can be acquired.

Action 2.6: Develop an interpretive site at the Painted Rock cultural site as described in the Cultural Resources section of this plan.

Action 2.7: Develop natural community interpretive sites at several locations in the CPNA that represent good examples of the natural communities of the area.

Action 2.8: Develop an interpretive site at a good example of habitat rehabilitation when a location is established and results are achieved or started.

H. LIVESTOCK GRAZING MANAGEMENT

Guideline A: Livestock grazing will be managed to foster the restoration and enhancement of plant communities and endangered plant and animal species of the CPNA.

Objective 1: Consolidate grazing allotments, when possible, under a single management entity to improve coordination of management actions and provide livestock operator flexibility.

Action 1.1: The Nature Conservancy will be the primary livestock grazing operator on the Natural Area. Where BLM lands are concerned, TNC, will apply for BLM grazing allotment

leases. TNC will be allowed to enter into livestock use agreements under these leases as allowed under 43 CFR, Subpart 4100.

Objective 2: Implement a livestock grazing system designed to increase native shrubs and perennial grasses while discouraging introduced annual grass species (unless diminishing annual grasses proves to be incompatible with preservation of threatened and endangered species of animals), improve natural plant community composition, and maintain or improve T&E plant and animal habitats.

Action 2.1: The grazing program will incorporate pasture rest periods and pasture rotation where possible. In addition, when designated calendar dates and/or environmental indicators reach annual threshold levels, cattle will be removed. Mulch (residual dry matter) and shrub utilization levels will be a key determinant for the termination of grazing seasons.

Management Units and Plans

Action 2.2: Management units during the first 5 years of the project will be delineated by the traditional ranch boundaries. A long term objective for grazing management units will be to eventually dissolve the traditional ranch boundaries and replace them with management units formulated on biological boundaries. This may not be possible in the initial years of the project due to the active transfer of lands from TNC to the BLM and the lack of appropriate fencing. Ideal management units should eventually be established on the basis of soil, precipitation, forage production, water availability, vegetation, topography types, and sensitive resources.

Action 2.3: A management plan will be developed for each grazing management unit (ranch). It will include an analysis of the effects of grazing to the endangered species of the unit and specify the livestock management details. The plan will specify first date of livestock entry, maximum stocking, end of the calendar grazing season, pasture rest and/or rotation requirements, recommended practices for leaving dead livestock on the range for scavenging wildlife and the environmental thresholds such as mulch residual or shrub utilization which would initiate de-stocking the unit. Sensitive areas (e.g. Threatened or Endangered plant occupied habitat) which should not be grazed will be delineated in the plans for livestock exclusion. Reseeded areas will not be grazed for a minimum of two years.

The Grazing Calendar Year

Livestock grazing will be allowed on the CPNA only between December 1 and April 1 during the first year after the initiation of the grazing system. An exception to these dates will be on the special use pastures. As more is learned about the specific biological communities of each management unit, the unit put-on and take-off dates will be refined. Grazing allotments occurring on the fringes of the CPNA boundary may be excluded from this grazing season. Calendar restrictions are necessary for several reasons. Most important is to favor cattle grazing to non-native annual grasses and filaree. By restricting late spring grazing, native perennial grasses should be favored.

A second reason to limit livestock grazing to the growing season of annual grasses is the protection of native shrub species. Shrubland has been severely overgrazed on the Carrizo Plain and restoration of the original shrub cover will enhance endangered animal species habitat. Shrubs are commonly browsed only after grass species are cured. If cattle are allowed to graze the annual grasses, but are removed before they begin to consume browse,

shrubs will be freed from water competition with grasses during the late growing season ano new growth will be protected. Release from completion allows shrubs to grow more than they would otherwise and improves summer browse for wildlife species.

The protection of sensitive plant populations and the mitigation of grazing impacts on giant kangaroo rat seed stockpiles may require grazing termination dates in advance of the April 15 date. Giant kangaroo rat precincts will be protected from grazing with an April 1 grazing termination date. California jewelflower populations will not be subject to grazing after February 15.

Rotation of Pastures

Pastures will be rotated and rested on a 3 pasture system. One pasture will be rested while two are grazed. The cattle put-on date for a particular pasture will be alternated annually between early and late entry. For example, if pasture 1 is being rested, the operator would begin the grazing season in pasture 2 and them move to pasture 3 later in the season. The next year that pasture 2 was available for grazing, it would be designated a late entry pasture. Late entry pastures will not be available for grazing until after February 1 or until mulch measurements have indicated it is time to move. Using this system, 2/3 of the pastures will be grazed each year. Only 1/3 of the preserve will have cattle on it at any time.

Rotation of pastures between early and late grazing use insures that early blooming plants are not heavily grazed each year. It also assures that annual seed crops are available for bird and small mammal use on an annual basis.

Maximum AUM Limit

High stocking densities increase soil compaction, especially when imposed during truncated grazing seasons. Soil compaction during the wet season reduces moisture infiltration into the soil and decreases productivity of desirable vegetation.

An upper Animal Unit Month (AUM) limit will be enforced on the Natural Area. An initial stocking rate of 0.2 AUM per acre (1 AUM per 5 acres), will be imposed to protect soil stability, reduce human/cattle interactions during the high human use season, and to reduce damage to giant kangaroo rat burrows. Authorized preference will based on this initial stocking rate. Future adjustments may be made, if appropriate.

The livestock operator will control stocking rates up to the maximum AUM limit. Billing for AUMs will be on an actual use basis. TNC will maintain actual use records of livestock grazed to be submitted to the BLM within 15 days after grazing ends each year (April 15).

Mulch Threshold

Mulch (residual dry matter) levels have been shown to influence range composition, productivity and protect the soil surface from accelerated erosion. A minimum mulch level will be established for each pasture during the first year. The minimum mulch level, which will vary from 500-700 lbs per acre, will depend on an individual pasture,s productivity and environmental sensitivity. Livestock will be removed when the designated level is reached regardless of the calendar date.

Shrub Utilization Threshold

Native shrubs on the preserve have been reduced by heavy historical livestock grazing. Maximum shrub use will be set at 20% of the current years growth. Whenever this threshold is reached, cattle will be removed from the pasture.

Objective 3: Initiate a range monitoring program to document the effect of the grazing system.

Action 3.1: Each grazed pasture will be monitored annually for forage production and mulch. The results will be used to evaluate when cattle should be moved to a fresh pasture or the preserve should be de-stocked. Usually, a minimum of three key areas per pasture will be established to monitor mulch levels for most pastures. A "double sampling" or ocular estimating technique for forage production should be sufficient for this process. Standard BLM range monitoring procedures would be adequate for mulch management. The Nature Conservancy will be responsible for range monitoring with the BLM.

Evaluation of the grazing system will be a major topic of proposed research program. This subject is discussed within the chapter titled RESEARCH.

I. REALTY MANAGEMENT

Realty management includes all land ownership actions or use authorizations that occur in the Carrizo Plain Natural Area. This program is responsible for land transfer, purchase, exchange, appraisals, grants, protective designations, etc.. Personnel from BLM, TNC, WCB and CDFG are assigned to this project to complete necessary actions to meet the acquisition objectives of the project. In addition, the realty program is responsible for processing and authorizing rights-of-ways, leases, grants, special use permits, etc. that may exist or be proposed within the CPNA.

All realty actions will be evaluated within the framework of agency policies, land use planning documents, State and Federal law, NEPA, and/or CEQA, and this management plan. The guidelines, objectives and actions described in this plan will be management guidance for the realty program in the CPNA. An interagency approach to land acquisitions and use authorizations will ensure consistency between the different land ownerships and with the goals and objectives in this and other CPNA documents.

Guideline A: Acquire lands within the boundary of the CPNA to protect and enhance the biological, recreational, cultural, and multiple-use values outlined in the goals and objectives of the CPNA acquisition and management plans.

Objective 1: Employ Federal, State, and private land acquisition funds and implement the exchange program developed in earlier documents to acquire all available properties within the boundary of the CPNA.

Action 1.1: The BLM will expend Congressional Land and Water Conservation Fund appropriations for direct purchase of lands in the CPNA from TNC or other landowners willing to sell. No lands will be acquired under imminent domain.

Action 1.2: Implement the Uniform Relocation Assistance and Real Property Acquisition Policies Act for those persons displaced by the purchase, exchange or donation of lands to the Federal Government within the CPNA.

Action 1.3: The California Wildlife Conservation Board (WCB) will acquire lands within the CPNA by direct purchase from TNC. A $500,000 purchase by the WCB was completed in 1988 for the American Ranch and the purchase of the Calhoon ranch was completed in 1989.

Action 1.4: Implement a land exchange program between the BLM and TNC to acquire approximately 45,000 acres within the CPNA. Parcels in San Luis Obispo County identified in the BLM Coast-Valley Land Use Plan will be screened under NEPA environmental assessments and BLM policy to be exchanged for lands previously acquired by TNC in the project area. A target of 4000 acres per year between 1988 and 1998 has been established by agreement between BLM and TNC. The existing pooling agreement between TNC and BLM will be the framework by which lands will be exchanged between BLM and TNC.

Action 1.5: Utilize compensation funds acquired by the BLM and other government agencies from Section 7 consultations with the FWS and CDFG to offset Threatened and Endangered species habitat impacted in development projects adjacent to the CPNA in Kern County. Within the framework of an interagency committee (FWS, BLM, CDFG, TNC and developer), evaluate compensated projects to evaluate if the CPNA is appropriate compensation for the species and habitats impacted.

Guideline B: Lands and Realty actions will be compatible with the long-term goals and objectives of the Carrizo Plain Natural Area.

Objective 1: Authorize only those realty actions that are designed, stipulated, or mitigated to maintain or enhance the management objectives of the CPNA.

Action 1.1: The BLM will be the focal point for coordination between land owners to ensure consistent design, stipulations, and mitigation measures for all realty actions in the CPNA. However, each land management agency (BLM, TNC, CDFG) will authorize realty actions affecting their properties. NEPA/CEQA compliance will be implemented on all required actions as per agency policy and law. State and Federal Endangered Species Act and antiquities legislation will be applied for all realty actions authorized in the CPNA.

Action 1.2: Authorizations will include measures that result in the most environmentally sound alternative that minimizes surface disturbance, avoids sensitive habitats or populations, and implements reclamation methods that reduces the period of impact. Realty actions that are not compatible with the goals and objectives of the CPNA will not be authorized.

Action 1.3: Each cooperating agency will designate lead individual for coordination of realty actions. The BLM lead will be the realty specialist in the Caliente Resource Area, The TNC lead will be the Central Coast Area Manager, and the CDFG lead will be the Wildlife Conservation Board.

Objective 2: Continue all existing easements and leases consistent with the goals and objectives on the CPNA.

Action 2.1: Agricultural leases will be allowed to expire and commercial farming will be phased out within one year of acquisition, unless other considerations warrant continued agricultural use.

Action 2.2: Inventory all existing leases and easements on all acquired lands and document

accordingly. Maintain an accurate LIS data base of all easements and leases in the BLM's system.

Action 2.3: Evaluate all existing leases and easements on the acquired lands for compatibility with the goals and objectives of the CPNA. Evaluate all additional acquired parcels within six months of acquisition.

Action 2.4: Eliminate incompatible leases and easements, where possible within three years of acquisition.

Objective 3: Maintain adequate trespass monitoring of the CPNA to detect and eliminate trespass realty actions.

Action 3.1: Conduct routine monitoring of the CPNA to detect trespass actions. BLM, TNC, and CDFG personnel will be monitoring management actions in the area and will be able to detect trespass actions and notify the appropriate land manager for their removal.

Action 3.2: Maintain current land use data in the Bureau's Land Information System (LIS) to evaluate unauthorized actions.

Objective 4: Protect acquired lands in the CPNA through Area of Critical Environmental Concern (ACEC) designation and withdrawal or retention management decisions.

Action 4.1: After evaluation of biological and cultural resource inventories, initiate ACEC designation for the CPNA. Determinations of allowable entries by the public will be made during the 1990 BLM land-use plan revision.

Action 4.2: Retain all lands in the CPNA for ownership by BLM, TNC, or CDFG, excluding agricultural entry of BLM lands in the CPNA.

Objective 5: If deemed necessary in the future, interagency land ownership patterns may be adjusted to improve management of the CPNA.

Action 5.1: All land ownership adjustments will be evaluated by an interagency management team (BLM, TNC, CDFG) to determine compatibility with CPNA goals and objectives. A consensus opinion will achieved before land ownership adjustments are made.

J. MINERALS MANAGEMENT

The majority of mineral rights in the CPNA are privately owned. Public purchase of these subsurface mineral rights is infeasible due to cost and the unwillingness of most landowners to sell them. The rights of reasonable surface entry, for mineral development, will be provided for, with provisions that provide adequate mitigation measures for protection of sensitive wildlife and plant species, cultural resources, and other resource values.

Guideline A: Mineral exploration and development will be conducted in a manner that is compatible with the sensitive resources of the CPNA and the guidelines and objectives of this plan. All activities will comply with all Federal, State and local laws and regulations.

Objective 1: Determine mineral development potential for all lands within the CPNA to aid in

planning decisions and management actions.

Action 1.1: Conduct mineral assessments of both Federal and private mineral estates on acquired lands within two years of purchase. Digitize mineral ownership in the Natural Area.

Objective 2: Evaluate mineral exploration and development proposals within the CPNA to insure compatibility with this plan and provide adequate design, stipulations, and mitigation measures.

Action 2.1: For each Notice of Intent and Application for Permit to Drill proposed within the CPNA, resource staff from the BLM will evaluate the proposal for potential impacts and recommend protective measures and stipulations to minimize impacts. Employ the following measures and stipulations as appropriate:

1. Restrict Vibroseisors to existing roads.
2. Conduct preconstruction surveys.
3. Fence roads and pads.
4. Use baker tanks as needed.
5. Minimize pad size and align to reduce impacts.
6. Stockpile topsoil for site restoration.
7. Use dust abatement.
8. Utilize existing disturbances to the furthest extent possible.
9. Allow no harassment of wildlife by feeding or shooting.
10. Use sealed garbage containers.
11. Reclaim the project site to preconstruction plant communities or improved natural communities.
12. Group oil and gas wells into central drilling sites and use directional drilling wherever possible.

Action 2.2: Surface compliance of mineral exploration and development actions will be coordinated by the BLM for all lands within the CPNA. On-site inspections will be preformed on a weekly basis (at a minimum) to ensure compliance with stipulations and mitigation measures.

Objective 3: Allow mineral development only on valid mining claims and ensure that plans are compatible with the goals and objectives of this plan.

Action 3.1: Within the designated ACEC, the BLM will manage legal surface mining operations in conformance with 43 CFR 3809.1-4 in order to prevent undue and unnecessary degradation. Plans of Operations will be required on all mining proposals. All operators will be bonded.

Objective 4: Areas where Federal locatable minerals development is not compatible with resource values or the goals and objectives of this plan, an evaluation of mineral values will be completed to determine if segregation from locatable minerals is needed.

Action 4.1: As important research and long-term monitoring locations are established, evaluate the Federal lands at these locations to determine if segregation from locatable minerals is needed to protect the integrity of these studies.

Guideline B: Reduce the impacts from past mineral development to improve the habitat quality, visual landscapes and recreational values of the CPNA.

Objective 1: Reduce impacts from past minerals exploration and development projects by rehabilitating disturbances to native plant communities.

Action 1.1: Inventory the CPNA to identify past minerals related disturbances. Sites will be evaluated for rehabilitation potential and will be included in rehabilitation efforts as appropriate. Identified rehabilitation of these sites will be completed as soon as possible.

K. FIRE MANAGEMENT

Guideline A: All wildfires will be suppressed within the CPNA and are the responsibility of the BLM on CPNA lands or the California Department of Forestry and Fire Protection (CDF&FP) as specified in the Cooperative Fire Protection Agreement Operation Plan between the BLM, Bakersfield and CDF&FP, Region 3.

Objective 1: Coordinate pre-suppression efforts to minimize suppression actions that may impact biological, cultural, recreational or other resource values in the CPNA.

Action 1.1: The BLM will meet annually with CDF&FP personnel at the local and regional levels to identify acquired lands and important CPNA resources that need special suppression considerations.

Objective 2: Ensure that site-specific protective measures are considered for each wildfire incident.

Action 2.1: CDF&FP will notify BLM dispatch within one hour per the operation plan and a BLM representative will be dispatched to all incidents occurring within or adjacent to the CPNA. Unit logs will be maintained by the representative to document recommendations, escaped fire situation analysis, decisions, and suppression tactics applied.

Objective 3: Suppression tactics will be the least-impacting on the sensitive resources found within the CPNA.

Action 3.1: Utilize the established road network as fire breaks for indirect line to backfire from when fires become too large and/or too dangerous for fire personnel to apply direct attack.

When direct attack is applied in grassland communities, hardline or hoselays should be used to reduce off-road impacts to endangered species and their habitats.

Shrub communities that exhibit severe impacts from fire should be protected to the fullest extent possible with aggressive fire suppression that keeps the size of the wildfires to a minimum while not producing unreasonable resource damage. Construction of fire lines may be considered.

Fire staging areas will be established only in previously disturbed locations, including the MU and Washburn ranches, and the Selby parking area.

Guideline B: Increase our understanding of the role of fire on plant structure and composition and how that affects the wildlife communities of the CPNA.

Objective 1: Establish post-fire monitoring studies to evaluate the impacts, benefits, and recovery of plant communities following wildfire incidents in the CPNA.

Action 1.1: Post-fire studies will be conducted for a minimum of five years following a fire, and will include information about the fire behavior (rate of spread, relative humidity, temps, winds, etc.) and the establishment of permanent vegetation transects and/or plots.

Action 1.2: Place Remote Automated Weather Stations (RAWS) in secure locations in the CPNA to gather weather information for fire weather, vegetation rehablilitation, vegetation production, and on-site weather patterns and trends.

Action 1.3: Prescribed fire management will be implemented based on research and need.

L. CADASTRAL SURVEY

Cadastral Survey includes those actions necessary to provide on-the-ground survey of land ownership and the land survey grid. This program includes the location and marking of section or subsection corner markers, easement descriptions and locations, and other land survey actions.

Guideline A: Conduct cadastral survey actions to document land ownership boundaries as needed to meet the goals, objectives, and actions of this management plan.

Objective 1: Conduct cadastral surveys in areas identified in this document or where future land ownership or easement boundaries need to be identified.

Action 1.1: The BLM will identify lands in need of a cadastral survey by September 1990. Future areas requiring survey may be identified on a yearly basis at the Interagency CPNA management meeting. Surveys will be initiated within one year of identification. Survey requests will be included in BLM five-year survey plan.

M. RESEARCH

Many of the management actions included in this plan are dependent upon the application of good scientific information that determine trends in sensitive species populations and habitat condition, native plant associations and habitat requirements, plant-animal associations, historical information, and basic biological and life history information. An active research program is necessary for the management of the Carrizo Plain Natural Area to ensure that management actions are effective and consistent with management objectives. Many of the studies included at this time are designed to answer baseline questions about sensitive plant and animal distributions, populations, habitat requirements, interactions, and trends. Some of these studies will be intensive forms of monitoring to assess management effectiveness and resource conditions. Other studies will help us look at the past natural communities to determine the best approach for the future rehabilitated communities. The site-specific collection of scientific data will help the managers of the Carrizo Plain Natural Area make the best decisions for the long-term preservation of the area's biological and cultural resources.

Guideline A: Facilities for research and management need to be established on the CPNA before active research can begin.

Objective 1: Establish a research facility on the CPNA.

Action 1.1: The Painted Rock Experiment Station, will be created to function as lodging, storage and minor lab facilities for researchers using the preserve.

The ranch house has been renovated to accommodate most CPNA research. A portion of the

house will be converted into an office. Outbuildings will be used as bunkhouses for visiting researchers and scientists. A herbarium will be established and copies of all Carrizo reference material kept in a small library. Research and restoration equipment will also be stored here.

The Nature Conservancy will hire the Research Coordinator as well as renovate the ranch buildings. TNC has provided $200,000 in seed money to initiate inventory and research.

Guideline B: Managing the Carrizo Plains requires substantial knowledge about an ecosystem which is presently poorly understood. Baseline information on the CPNA's resources needs to be collected before "wise" stewardship can be initiated.

Objective 1: Initiate an inventory of endangered plant and animals.

Action 1.1: Only limited data exists on the current status of the Carrizo's rare plant and animal species. Due to the expanse of the Carrizo Area, surveys will have to be conducted on a section by section basis, covering 230 sections in total. Plant surveys will occur primarily in the winter and spring seasons when short lived annuals can be found. Animal surveys will occur during season of their greatest activity. Plant and animal surveys should be conducted over at least 2 years to compensate for species composition fluctuations caused by variation in rainfall.

The plant and animal surveys were initiated in August 1988 with funding from California Fish and Game Endangered Plant program, the BLM, The Nature Conservancy and the California Energy Commission.

Objective 2: Develop a natural community classification system for the reserve.

Action 2.1: This study was initiated in August 1988 with funding from California Fish and Game Endangered Plant Program. The system developed by the California Natural Heritage Program would likely form the base to be expended upon. A vegetation map at the 7.5 minute scale should be constructed.

Objective 3: Potential vegetation is ultimately tied to soil chemical and physical properties. A soil map and report should be developed for the CPNA.

Action 3.1: A soil survey will be initiated. The BLM will provide $50,000 of funding to begin this project. Refer to the Soil, Water and Air section of this plan.

Guideline C: Before Europeans settled the Central Valley, pronghorn and tule elk roamed the Carrizo Plain. Over the past 100 years nearly all of the Plain has been intensively grazing by livestock. The effect of livestock grazing on the natural communities and especially the endangered animals and plants is not well understood. Research should be initiate to further understand these relationships.

Objective 1: Initiate a research project investigating the effect of a rest rotation grazing system on the natural communities of the CPNA.

Action 1.1: The recent change of land use from year-round livestock grazing to a controlled grazing system offers a unique opportunity to document the effects of a large scale grazing system on the vegetation of the CPNA.

Monitoring the grazing system's effect is necessary to understand if the implemented grazing system is accomplishing the stated goal of improving the habitat of endangered species. Most of the livestock grazing on the CPNA will be conducted as a 3 pasture rotational system (see Grazing Chapter). Ungrazed pastures have been chosen to correspond to each experimental replication to evaluate a no grazing impact.

Action 1.2: Permanent vegetation monitoring transects should be established in all of the major plant communities on the CPNA. There should be replicated transects in each biological community for the 3 pasture grazing system, the year-round grazed special use pastures, and non-grazed exclosures.

Sampling should use a valid experimental design. The results are best shared as a publication in scientific journal. Parameters measured should include vegetation composition, density, production, and structure. The Nature Conservancy has contributed $55,000 to grazing studies.

Objective 2: Initiate research to investigate the relationship between livestock grazing and the endangered species of the CPNA.

Action 2.1: In addition to studies which monitor the existing grazing system, more detailed examination of the effects of grazing on individual species should be encouraged. California Dept. Fish and Game has initiated a comprehensive study on the effect of grazing on giant kangaroo rats, short-nosed kangaroo rats (Dipodomys nitratoides brevinasus), blunt-nosed leopard lizards and San Joaquin kit fox on the Elkhorn Plain. This type of study should be expanded into the Carrizo Plain and for other rare plant and animal species .

Guideline D: It is well known that fire played an important role in grasslands of the Central Valley of California. It is not known if the low rainfall region of the Carrizo Plain also was affected by natural wildfire. The chances of major wildfire of the CPNA will be increased by the reduction of livestock grazing pressure when the 3 pasture grazing system incorporated. Project managers need to understand the effect of fire on the native vegetation.

Objective 1: Initiate a study which investigate the effect of fire on the CPNA's natural communities.

Action 1.1: Burns during certain seasons may be beneficial and increase diversity of native vegetation. On the other hand they may be extremely destructive. A study should be designed to explore the role of fire on the CPNA. The study should illuminate the effects of fire caused by season and vegetation types.

The results of fire research should enable CPNA staff to write fire recommendations for the entire area. This would include maps which would designate "limited suppression" areas, as well as those areas were strict fire suppression should be practiced.

Guideline E: The basic ecology of San Joaquin kit fox, blunt-nosed leopard lizards, San Joaquin antelope ground squirrels, and giant kangaroo rats are incompletely understood. The same is true about many of the endangered plant species such as the California Jewel Flower. Part of every Federal Species Recovery Plan requires recovery criteria to be determined. This is not feasible without an understanding of the species population structure, reproductive capacity and habitat requirements. Research should be directed toward collecting this information.

Objective 1: Initiate research on the basic ecology of the CPNA's endangered species.

Action 1.1: Determine for each of the rare or endangered species on the Carrizo Plain Natural Area:
1. reproductive capacity
2. population structure by age class and sex
3. mortality causes by age class and sex
4. habitat requirements

The above information will allow population viability analysis - PVA as well as other management analysis. The Nature Conservancy initiated a study in October 1988 to help answer the above questions for the kit fox population on the Carrizo. Similar studies should be initiated for the other species.

Guideline F: There is a need to evaluate over time the status of the Endangered species for which the CPNA was established. Initiation of a monitoring program to track endangered species abundance and/or viability is central to measuring the Natural Area's success or failure.

Objective 1: Incorporate the rare, threatened or endangered species of plants and animals found in the CPNA into TNC's monitoring program.

The CA Nature Conservancy's Element Monitoring program a wide-spread tracking system for rare and endangered species in CA. Currently over 50 species are being monitored. Results are distributed to State and Federal Agencies as well as the Department of Fish and Game Natural Heritage Division.

Action 1.1: Over the next 5 years, San Joaquin kit fox, blunt-nosed leopard lizard, giant kangaroo rats, San Joaquin antelope ground squirrels, sandhill cranes, Atriplex vallicola, and California jewelflower should be incorporated into the monitoring program. This should happen after the initial inventories are completed. Standard TNC format monitoring plans will be written for each of the species with input from CDFG, BLM and CNPS botanists. Writing of the plans should be contracted to specialists for each of the organisms.

Action 1.2: Monitoring will be conducted by BLM, TNC and CDFG biologists and botanists as described in the Featured Species and other sections of this plan.

Guideline G: Over 40,000 acres of the CPNA have been farmed. Restoration to natural communities with natural vegetation is a desired goal. Research is needed to develop techniques to economically restore farmed lands.

Objective 1: Initiate studies which will further our understanding of soil vegetation relationships and pristine vegetation of the Carrizo area.

Action 1.1: If restoration of the Carrizo Plain is to be achieved, an understanding of the pristine vegetation should act as a starting point. It is well recognized that complete return of the original vegetation may not be possible or even desirable, yet knowledge of past vegetation composition will be valuable to restoration efforts.

Research should be conducted which includes traditional historical research as well as more technical techniques such as pollen analysis. Several mud core samples were taken from

Soda Lake in August of 1988 to determine if identifiable pollen is available for analysis. A contract with an expert should be granted if the preliminary results are favorable.

Of special importance to the restoration of abandoned farm land is an understanding of the different soil types and the native vegetation it will support. There are obvious gradients of soil salinity extending from Soda Lake upwards towards the foothills of both the Caliente and Temblor Mountains. Before restoration practices begin we need to know what type of native vegetation can be supported on the varying soil types. Projects should be initiated which include; a) a complete soil survey of the CPNA. b) an in depth investigation of the relationship between soils and potential natural vegetation should be conducted.

Objective 2: Establish test restoration plots to determine the most promising techniques for re-introducing key native grass and shrub species.

Action 2.1: Soils/vegetation studies will indicate which species should be considered key for restoration projects. After the species are selected, various combinations of planting methods should be studied before large scale restoration is attempted. Small experimental plots will be established to determine which planting techniques appear most promising. Treatments should include; a) combinations such as plowed vs. a fallow seedbed, b) fertilization vs. non-fertilization, c) straw mulch vs. no mulch, d) cleaned vs. non-cleaned seed and e) bare root vs. container-grown plants.

Objective 3: Develop native plant seed sources & collecting methods for restoration projects.

Action 3.1: Only local seed should be used for restoration projects. Seed collected on site will insure that the genetic integrity of the CPNA be continued. In addition, local seed may have the best chances of growing since it will be adapted to the CPNA's climate and soils. Seeds should be obtained using the following methods:

a. Shrub seeds may be best collected at the CPNA by volunteers or prisoners. Species like Atriplex polycarpa are prolific seed producers and large amounts of seed can be collected by unskilled labor.

b. Grass seed may be more difficult to collect in large quantities and have to be cultivated on a farm. If large scale planting of native grass is determined to be feasible, a farm should be established with the initial seeds being collected from the CPNA. A small native seed farm should be established at the Painted Rock Ranch since labor and water is available.

Guideline H: As more research is initiated in the CPNA, there is a need to coordinate the funding, schedule the support facilities, review objectives, evaluate study design, and implement research results. There is a wide variety of work being conducted and it is expected that more research will be initiated. To facilitate the research and better coordinate projects in the CPNA, research coordinators will be designated.

Objective 1: Designate research coordinators for the CPNA research projects.

Action 1.1: The Nature Conservancy will coordinate all endangered species, natural community, and ecological studies conducted in the CPNA.

Action 1.2: The Bureau of Land Management will coordinate cultural resource, natural history and recreation resource research in the CPNA.

MONITORING AND EVALUATIONS

As this Carrizo Plain Natural Area Plan is implemented, there will be a need to evaluate accomplishments, shortfalls, realities and new opportunities that evolve as we learn more about the area, the resources and the human related impacts. This management plan is designed to accommodate the need to make changes through a process of monitoring and evaluation. The dynamics of natural resource management demands that resource conditions be monitored on a continuing basis and that the conditions and trends be evaluated periodically. Additionally, the plan itself must be monitored and evaluated to determine if the objectives are being achieved and that the actions are being accomplished and are appropriate.

The best way to accomplish the monitoring and evaluation requirements needed for this plan is to conduct a yearly monitoring and evaluation meeting between the cooperating agencies. A management evaluation meeting will be held each year to evaluate the CPNA plan.

MONITORING is the process that will be used by the Carrizo Plain Natural Area management agencies to evaluate the success of this plan. There are two types of monitoring that will occur in the CPNA. The first of these is the monitoring of resource conditions to determine condition, trend, changes, etc. This is the technical monitoring that is described in many of the Actions of the document. Technical monitoring may include population and distribution studies of plants or animals, habitat use patterns, recreation use patterns, aerial photography and interpretation, plant composition and biomass production, weather and precipitation, and grazing utilization. These monitoring tasks will be carried out as planned actions are accomplished, and documented on a yearly basis. The second type of monitoring is directed at the plan itself to see if the planned actions are being accomplished. Each Action will be evaluated on a yearly basis to track if it is initiated, conducted, or completed as planned.

EVALUATIONS are the process by which each plan objective and planned action will be reviewed to see if they are obtainable, reasonable, or in need of adjustment. Each year the CPNA management committee will evaluate each objective and action to track progress and consider changes. All changes will be based on the best scientific information available from on site research and monitoring, pertinent research, the endangered species recovery plans, management effectiveness, and budgetary opportunities and constraints.

IMPLEMENTATION SCHEDULE

An implementation schedule for the CPNA Management Plan has been prepared, and will be maintained. Each action has been assigned a time frame for initiation and/or completion, a lead agency, and support agencies. The initiation date and completion date will be entered as appropriate. This implementation schedule will be completed during the yearly evaluation meetings.

COST SCHEDULE

A cost schedule for the Carrizo Plain Natural Area Plan is on hand at the Caliente Resource Area office. Each action is listed with the approximate cost.

APPENDIX J-A

Memorandum of Understanding Between
The California Department of Fish and Game,
The U.S.D.I. Bureau of Land Management,
and The U.S. Fish and Wildlife Service
for the Carrizo Plain Macropreserve.

(On file at the BLM Caliente Resource Area office)

APPENDIX J-B

Cultural Resources Standard Procedures

The following cultural resource measures will be implemented as standard operating procedures for land disturbing management actions in the Carrizo Plain Natural Area. These procedures should be followed on all agency lands within the CPNA, regardless of BLM, TNC or CDFG ownership:

1. Lands previously plowed for agricultural use and now targeted for rehabilitation by scarification and reseeding:

   a. Check existing cultural records for known sites.
   b. No cultural survey recommended if deemed appropriate.
   c. Avoid known cultural resource sites.
   d. Cease operations and notify BLM should cultural resource be discovered during project implementation.

2. Lands not previously plowed for agricultural use and now targeted for rehabilitation by scarification and seeding:

   a. Check for known cultural resources on record.
   b. Conduct sufficient level of cultural inventory prior to project implementation.
   c. Recommend avoidance and/or mitigation of significant cultural properties.
   d. Cease operations and notify BLM in the event cultural resources are encountered during the project.

3. Existing roads targeted for rehabilitation by scarification:

   a. Check for known cultural resources on record.
   b. Avoid or mitigate known cultural resource sites as deemed appropriate.
   c. No cultural survey recommended if deemed appropriate.
   d. Cease operations and notify BLM should cultural resource be discovered during the project implementation.

4. New roads or projects on undisturbed land:

   a. Check for known cultural resources on record.
   b. Conduct sufficient level of cultural inventory prior to project implementation.
   c. Recommend avoidance and/or mitigation of significant cultural properties, as

deemed appropriate.

d. Cease operations and notify BLM in the event cultural resources are encountered during the project.

5. Old buildings, structures, and historic implements/artifacts should be assessed by a cultural or historic specialist prior to the destruction of removal of the materials. Significant resources should be preserved, where appropriate. For sites over 50 years old, Section 106 of the National Historic Preservation Act should be completed prior to altering or disturbing the site. Appropriate action such as avoidance or mitigation should occur prior to site disturbance.

Appendix J-C

Road Maintenance Procedures

For all road maintenance activities, including activities usually not extending into sensitive species habitat, the following measures will apply:

1. The County will designate a representative to ensure that the following endangered species protective measures are complied with. The County will furnish the Caliente Resource Area Office with the name and telephone number of their designated representative.

2. To the maximum extent possible all parking of vehicles and equipment, and any stockpiling of materials will be confined to areas previously scraped clear of vegetation such as established roads and parking lots. Previously used parking areas and stockpiling areas that are not established roads or parking lots, will be inspected by a biologist and an archaeologist prior to additional use. Additional parking or stockpiling areas may also be designated after site inspection by a qualified biologist and an archaeologist. Parking and stockpiling areas will be shown on Map ___.

3. Off-road vehicle travel, including the parking and turning of equipment and vehicles, will be kept to the minimum amount necessary. Where off-road vehicle travel is required, a pre-construction evaluation will be made by a biologist and an archaeologist to specify avoidance areas and any additional stipulations.

4. The source location for fill material or rock material will be subject to evaluation by an archaeologist and a biologist prior to evacuation.

5. The County and the Bureau will develop and implement an education program for all road maintenance personnel prior to the onset of ground disturbing activities. This program will address the occurrence of endangered species in the project area, their identification, applicable protection of listed species under the Act, measures that must be implemented or observed under this plan and any Biological Opinion to protect endangered species, and procedures to follow should incidental take of a listed species occur during project construction or maintenance.

6. All food related trash such as wrappers, cans, bottles and food scraps will be collected daily and disposed of in closed containers or regularly removed from project sites. Food related trash will not be allowed to accumulate on any project site.

7. The U.S. Fish and Wildlife Service, Sacramento Endangered Species Office (Mr. Gail Kobetich, 916/978-4866), is to be notified within three working days of the finding of any dead or injured endangered species. Cause of death or injury, if known, shall also be conveyed. Such animals will be turned into Mr. Larry Owens, 209/487-5773, U.S. Fish and Wildlife Service, Division of Law Enforcement.

For road maintenance activities that usually extend into sensitive species habitats, additional measures may be required after site evaluation by appropriate specialists, or completion of the Biological Opinion for this plan. Road maintenance activities that usually extend into sensitive species habitat includes pulling of ditches, installation and repair of drainage ditches, installation or replacement of culverts, repairing washouts, widening roads and installation of signs.

Road maintenance activities that usually do not extend into sensitive species habitat includes blading the top of the road, repair or patching of pavement and addition of roadbed materials.

To facilitate timely site inspections by specialists for maintenance activities that extend into sensitive areas, the County and the Bureau will meet annually to determine what activities, if any, will require site evaluation by an archaeologist or biologist in the upcoming year. This annual meeting will be held in ____ of each year.

For those maintenance activities where preplanning is not possible, such as road and culvert washouts, the County will contact the Bureau as soon as the need for the maintenance becomes apparent. The Bureau will provide any special mitigation measures to the County within ____ days, appropriate. For sites over 50 years old, Section 106 of the National Historic Preservation Act should be completed prior to altering or disturbing the site. Appropriate action such as avoidance or mitigation should occur prior to site disturbance.

APPENDIX K - Walker Pass Coordinated Resource Management Plan

A Coordinated Resource Management Plan (CRMP) is the product of an intensive group effort. To work, it must involve all interested and affected parties - landowners, user groups, and local and Federal agencies. A CRMP is a product of intensive study and debate. The final recommendations may be the result of concessions by all interests, and it usually reflects a consensus among all participants.

Unfortunately, the name is confusing. A CRMP ***is not*** a Resource Management Plan (RMP) like the Caliente RMP. The Caliente RMP is a land use plan; it identifies planning direction. The Walker Pass CRMP (like any other CRMP) is an activity plan; it identifies the steps to be taken to implement the land use plan.

The Walker Pass CRMP was written in response to some of the decisions in the South Sierra Foothills Management Framework Plan (MFP), a predecessor to this document, for the Chimney Peak Management Area. The CRMP specifies the actions that would implement those MFP decisions.

Some of the actions identified in the Walker Pass CRMP have already been completed. Although the implementation of each action has been preceded by NEPA analysis, no environmental review was conducted on the overall plan. The impacts of implementing the overall CRMP have now been assessed, and are incorporated into the Environmental Consequences section of this document.

To date, approximately one-half of the actions specified in the CRMP have been implemented. Many of the MFP decisions which the CRMP was designed to implement are still valid, and have been brought forward into the new Caliente RMP. To implement the decisions that have been brought forward as well as the new decisions identified in Chapter 3 of this document, the Walker Pass CRMP will continue to serve as the activity plan for that area. Decisions in the new Caliente RMP clarify and reaffirm the purpose of the planned actions specified in the Walker Pass CRMP.

Table of Contents

I. Introduction 789

II. General Location 789

III. Issue Summary 789

IV. Coordination 791

A. Sikes Act 791

B. Related Planning Documents 791

C. Participants 791

V. General Description of the Ecosystem 791

VI. Existing Management 794

VII. Objectives 797

IIX. Technical Review Team Recommendations 800

A. Long Valley Technical Review Team 800

B. Kennedy Meadows Technical Review Team 802

C. Canebrake - Walker Pass Technical Review Team 805

D. Chimney Peak Technical Review Team 809

IX. Subcommittee Recommendations 813

X. Monitoring 813

XI. References 816

I. Introduction

Coordinated Resource Management Planning (CRMP) addresses the challenge of managing areas with multiple land owners, conflicting management objectives and requirements and competing land-use demands. Using the best efforts of local residents, other private landowners, appropriate federal, local, and state agencies, and other specialists, Coordinate Resource Management Planning integrates and coordinates resource uses to accomplish specific goals.

While, at first, some proposed objectives and planned actions may seem contradictory, Coordinated Resource Management Planning works to resolve such differences. New, mutual objectives are developed if needed through consensus to replace the original conflicting objectives or planned actions. The result of such cooperation between different interest groups, agencies and members of the public is this Coordinated Resource Management Plan.

Table 1 identifies the structure that was used in this Coordinated Resource Management Plan process.

All proposed actions are constrained by Standard Operating Procedures and Project Design Guidelines, (pages 2-23, 24, 25 South Sierra Foothill Grazing Management Draft EIS).

II. General Location

The Walker Pass Coordinated Resource Management Plan Area lies approximately 20 miles east of Lake Isabella, California. It is bounded on the east and south by the crest of the Sierra Nevada Mountains, on the west by the Dome Land Wilderness, and on the north by Kennedy Meadows. It is comprised of approximately 100,000 acres of public land administered by the Bureau of Land Management and 15,500 acres of private lands. About one-third of the area lies in Kern County and two-thirds lie in Tulare County.

III. Issue Summary

- Coordinated Resource Management Plan Boundary
- Grazing Management (Use Areas, Season of Use and Range Projects)
- Kennedy Meadows Community Expansion
- Recreation (Pacific Crest National Scenic Trail, Dispersed, Commercial, Campgrounds)
- Woodland Management (Fuelwood, Prescribe Burn, Black Stain Root Disease, Pinyon Nuts)
- Cultural Resource and Native American Concerns
- Wildlife Habitat (Deer Herd Management, Rare, Threatened and Endangered Animals, Upland Game Habitat, Riparian Habitat)
- Transportation Network Improvement and Route Designations

TABLE 1.

Coordinated Resource Management Planning Structure Used to Develop the Walker Pass Coordinated Resource Management Plan.

1. Steering Committee

- Elected by CRMP Group to represent a resource or agency interest
- Identify CRMP area
- Organize the effort and lead
- Determine priorities
- Organize the technical review team (TRT) committee
- Identify issues
- Develop an action plan
- Promote an atmosphere for trust
- Explore, experiment, and develop innovative techniques, policies and management practices to improve livestock forage conditions, improve wildlife habitat and improve watershed conditions
- Seek ways to integrate private land potential with public land and to support funding for improvements and practices
- To make available program information and encourage public involvement

2. Subcommittee

- To be formed when and as needed as determined by the Steering Committee
- May be a temporary or standing committee depending upon the need (role)
- May have more than one formed
- Composed of members of the Steering Committee

3. Technical Review Teams (TRT)

- Composed of CRMP group participants
- Each individual represents an individual resource on land use concerned for a given area (i.e., BLM, wildlife, rancher, mining interest, County govt., wilderness, etc.)
- Role is to:
  *Investigate allotment conditions "on-the-ground"
  *Assess the issues, identify the problems and problem areas, assess various courses of action and develop management recommendations to the Steering Committee

4. Coordinated Resource Management Planning Group (CRMP Group)

- All interested resource users, landowners, or government agencies involved with land management or use within the CRMP boundary.
- Review and comment on all plan recommendations from the TRT or Steering Committee.
- Watershed (Meadow Degradation, Water Quality and Riparian Management)
- Rare, Threatened and Endangered Plants
- Minerals Management
- Administration (Fire, Law Enforcement)

IV. Coordination

A. Sikes Act

This document is written in cooperation with the California Department of Fish and Game under Memorandum of Understanding, dated May 24, 1983, and conforms with requirements of the Sikes Act.

B. Related Planning Documents

The following planning documents were used as guides to the development of management objectives for this plan. The intent is to have this plan coordinate or complement the actions that have been recommended in these other plans.

Bureau of Land Management

South Sierra Foothills Management Framework Plan, 1984
South Sierra Foothills Rangeland Program Summary, 1984
PCNST Recreation Area Management Plan, 1984

California Department of Fish and Game

Monache Deer Herd Management Plan, 1985

Local Government Plans

Kern County General Plan
Tulare County General Plan

C. Participants

Appendix K-A. lists the participants in the Walker Pass Coordinated Resource Management Planning process.

V. General Description of the Ecosystem

Additional information and maps is contained in individual Technical Review Team Information Packages, on file at the Caliente Resource Area Office

Topography

The area lies on the west slope of the Sierra Crest. The upper two-thirds lies on the Kern Plateau which is characterized by rugged and rocky mountain ridges separated by several small high mountain valleys. The lower third drops sharply into the Canebrake Creek drainage which flows into the South Fork of the Kern River to the west. Elevations range from 2,300 feet in the southwest corner, to 8,500 feet on the Sierra Crest.

Soils

Soils are generally of loamy sand texture, low in organic matter, and are forming from decomposing granitic bedrock. Valley areas generally have very deep, loamy sand soils. Rock fragments and rock outcrops are common only in the steeper mountainous areas.

Vegetation

Joshua tree woodland occurs at the lowest elevations in the southwest corner of the planning area. The vegetation changes as elevation is gained going eastward up the Canebrake drainage, with the next vegetation community comprised of California mediterranean annuals. Slightly further up the drainage towards Walker Pass the annuals give way to a mixed desert shrub community and then finally changes to pinyon woodland at the highest elevations.

The northern two-thirds of the planning area is comprised largely of pinyon woodland and sagebrush scrub. Most of the drainages on this portion contain riparian vegetation and occasional wet meadows.

Three federally listed candidate plant species are known to be found growing in different site areas within the Walker Pass Coordinated Resource Management Plan area.

Phacelia novenmillensis has been found during the peak of its flowering period during May at the head of Nine Mile Canyon. It prefers south facing slopes ranging from 5,800 to 6,500 feet elevation generally in open pinyon pine forests. It has also been found near Long Valley growing in a similar habitat. This plant is an annual and rather small in size, approximately six inches in height. The flowers are deep blue in color.

Mimulas shevockl grows at lower elevations ranging from 3,500 - 4,000 immediately west of Walker Pass. April is generally the peak month for flowering for this small annual. The flower is bright yellow and magenta and is typical in the distinctive shape of most monkey flowers. The plant community which it is associated with is a mixture of scattered shrubs, California juniper, pinyon pine and annual herbs.

Eriogonum breedlovei has been documented in the Sacatar Meadow area at an elevation of approximately 7,000 feet. It prefers dry, open sunny areas and can be found in bloom between June and July. The small clustered flowers are pinkish-white in color. The plant is a perennial.

Wildlife

The Walker Pass Coordinated Resource Management Plan Area is cooperatively managed with the California Department of Fish and Game as a portion of the 306,422 acre Monache-Walker Pass National Cooperative Land and Wildlife Management Area (Public Land Order 2594). This National Cooperative Land and Wildlife Management Area was withdrawn from application under the nonmineral public land laws and from disposition under the homestead, desert land and script selection laws (Federal Register January 26, 1962, Volume 27, Number 18, pages 779 and 780). These areas were established for the development, conservation, utilization and maintenance of their natural resources, including their recreation and wildlife resources. Major habitat types within the plan area include Pinyon Woodland, Sagebrush Scrub and Joshua Tree Woodland. A portion of the migratory Monache Deer Herd winters on the Long Valley Winter Range, located within the west boundary of the plan area. Resident mule deer, mountain lion, bobcat, coyote, black bear, mountain and California quail, golden eagle, and red-tail hawk also inhabit the area. No federally-listed

threatened or endangered species are known to inhabit the area. Special status species known or suspected to occur on lands adjacent to the plan area include slender salamander, California yellow-billed cuckoo and Kern golden trout.

Cultural Resources

An overview of the history, archeology, and ethnology of the southern Sierra Nevada has recently been completed by Theodoratus Cultural Research, Inc. and Archeological Consulting and Research Services, Inc. For detailed information refer to Cultural Resources Overview of the Southern Sierra Nevada (TCR-ACRS 1984).

The oldest archeological sites of the southern Sierras are believed to be around 5,000 years old, although evidence from adjacent areas suggests even earlier occupation. The prehistoric inhabitants subsisted on hunting deer and smaller game and collecting acorns and pinyon nuts. The latter two resources were the most important because they could be gathered in great quantity and stored for long periods of time. Also, these resources were available on a seasonal basis and prehistoric people scheduled their settlement movements accordingly. The most common archeological site types in the CRMP area consists of bedrock milling features, lithic scatters, and middens. Often these features will occur together. Rock shelters, rock rings (or other shapes), and rock art are also found in the area.

Ethnographically, the CRMP area was occupied primarily by the Tubatulabal and Kawaiisu peoples with the boundary corresponding roughly to the South Fork of the Kern River; the former were located to the north, the latter to the south (Voegelin 1938 and Zigmond 1980 cited in TCR-ACRS 1984). In spite of their linguistic differences, the two groups apparently had much in common culturally, including a subsistence pattern based on hunting, fishing, and gathering. This pattern involved collecting acorns and pinyon nuts which were abundant in both group's territories. The eastern periphery of the CRMP area was utilized by the Panamint Shoshone and the Owens Valley Piute margined the northeast boundary of the area (McGuire and Garfinkel 1980).

Historically, the CRMP area was generally not used by the Spanish and Mexican settlers to the west. The first American to have entered the area officially was Joseph R. Walker who led one of Fremont's expeditions over Walker Pass in 1834. Initial settlement came with the discovery of gold near Keyesville in 1856; however, the strike was short-lived and mining eventually gave way to sheep and cattle ranching. Today, the area is used principally for recreation by urban communities nearby, although grazing and mining are still important activities (TCR-ACRS 1984).

A number of archaeological inventories and excavation projects have been undertaken in the South Sierra Foothills planning area. Among the major projects are the Lake Isabella shoreline surveys sponsored by the U.S. Army Corps of Engineers (Schiffman 1976; Glassow and Moore 1985; Meighan, et. al. 1985) the Pacific Crest National Scenic Trail surveys and excavations (Clough 1976; Montizambert 1978; Garfinkel, Schiffman, and McGuire 1980; McGuire and Garfinkel 1980), Salzman's (1977) mapping and evaluation of the long Canyon Village Site, and Schiffman (1985) excavation of a rockshelter in the Spanish Needles vicinity. A detailed review of these projects and others is available in the Class I overview for the area (TCR - ACRS 1984).

Although a great number of archaeological sites in the CRMP area are likely eligible for inclusion to the National Register of Historic Places (NRHP), there is only one listed National Register property, the Walker Pass National Historic Landmark.

Previous cultural inventories and literature pertinent to the area encompassing the CRMP area,

indicate the area for the most part is considered culturally sensitive, primarily ranging from moderate to very high.

General Geology and Mineralization

The lands included in the Walker Pass Coordinated Resource Management Plan area are underlain by granitic rocks of the Sierra Nevada Batholith. These rocks typically consist of feldspar, quartz, hornblende and mica. Scattered bodies of metamorphic rocks (roof pendants) occur on top of the granitic rocks. The metamorphic rocks are older than the granites which intruded them as molten rock from below. Uplift and erosion has left the metamorphic rocks as isolated, linear, masses on the granitic mountain core. These roof pendants have been designated the Kernville Series and consist of slate, schist, quartzite and marble.

Mineralization in the area is associated with the metamorphic rocks. Small deposits of tungsten, barite, molybdenum, limestone, and uranium are known or expected to occur in or near the contacts of roof pendants. Purely granitic rocks of the batholith are generally devoid of mineral deposits. Several small adits, shafts, and cuts throughout the metamorphic rocks indicate a high level of prospecting and small production. Mining in the vicinity of Chimney Peak produced barite during the 1950's. This activity has left deep open stopes and underground workings which are easily accessible by dirt roads.

Watershed

The mean annual precipitation in the area ranges from 8 to 12 inches per year. Winter snow and rain accounts for about 90 percent of this total. Runoff from the area is very limited because of the low precipitation and permeable soils. Summer and fall thunderstorms present the major erosion hazard because of their intensity and the detachability of the granitic soils.

VI. Existing Management

Recreation

The planning area contains the Chimney Peak Special Recreation Management Area (SRMA) which includes the Long Valley Campground and the Upper and Lower Chimney Creek Campgrounds. The Long Valley Campground serves as a trailhead to the U.S. Forest Service's Domeland Wilderness Area and fishing on the South Fork of the Kern River. The river can also be accessed by the Rockhouse Basin road, which also serves as a trailhead to the Domeland Wilderness Area.

The planning area also contains the Walker Pass Trailhead Campground which serves the Pacific Crest National Scenic Trail, which traverses the planning area. Backpacking and hiking are popular on the Pacific Crest National Scenic Trail and are expected to increase dramatically when all portions of the trail are completed.

Most recreational use of the public lands in the study area occurs during the spring, summer and fall. Recreational activities include but is not limited to hunting, fishing, hiking, camping, pinyon nut collecting, rock hounding, off road vehicles, and horse back riding.

Wilderness

The planning area contains three Wilderness Study Areas (WSA). These study areas will be managed under the Interim Management Policy to protect their wilderness values until congress makes the final determination as to which Wilderness Study Areas, or portions of Wilderness Study Areas, are to be designated wilderness.

WSA Name	WSA Number	WSA Acreage	Acres Recommended Suitable for Wilderness
Rockhouse	CA-010-029	34,795	13,300
Owens Peak	CA-010-026	22,560	14,960
Sacatar	CA-010-027	18,175	11,447

Grazing

There are three grazing allotments within the CRMP area. The Walker Pass West Allotment was used by three grazing operators in common up until 1987. The lower elevations generally serve as spring use pastures, while the upper elevations serve as summer and/or fall use pastures. The main concerns for livestock grazing on this area center around water availability, forage availability, and livestock distribution. Details of current livestock permit information are contained in Table 2.

TABLE 2

EXISTING GRAZING MANAGEMENT

Operator	Allotment	Season	Number	AUMs*
Alexander	Sacatar Meadow	10/1 to 10/31	96 cattle	120
	Walker Pass (West)	11/1 to 11/30	50 cattle	
		12/1 to 06/15	109 cattle	
		6/15 to 6/30	50 cattle	781
	Jacks Creek (USFS)	3/1 to 6/30	30 cattle	120
Sprague Ranch	Walker Pass (West)	11/1 to 12/31	50 cattle	1178
		1/1 to 2/28	84 cattle	at (185 active)
		3/1 to 6/30	292 cattle	82%FR**
Smith Ranch	Walker Pass (West)	11/1 to 2/28	41 cattle	
		3/1 to 6/30	41 cattle	
		7/1 to 10/1	260 cattle	1111
Erwood Edgar Family	Scoble Allotment	6/1 to 11/15	34 cattle	182
Tip Tipton	Spanish Needle	3/1 to 4/30	20 cattle	40

*AUM - Animal Unit Month represents the amount of forage required to feed one cow or its equivalent for one month.

**%FR - Percent Federal Range is the percentage of forage that comes directly from federal land in the allotment.

Minerals

The South Sierra Foothills Management Framework Plan specifies that the management area will be open to mineral location and development except where development will degrade the Visual Resource Management Class II and III areas along the Pacific Crest National Scenic Trail. No mineral withdrawals have been authorized to date. Mine hazard reduction is also identified as a management goal.

All proposed and existing mining operations are subject to review and monitoring to ensure prevention of undue and unnecessary degradation to the public land. Authority and guidance for this management is found in the Code of Federal Regulations at 43 CFR 3809.

Pinyon Nut Harvesting

Pinyon nut harvesting has been done commercially in past years by harvesters under contract. Collecting was done in the vicinity of Chimney Peak. Native American groups were troubled by the large scale collecting by these commercial harvesters. For the past five years there has been no commercial gathering due to a lack of manpower to administer the contracts and Native American concerns. Free use collecting is permitted. Each collector is allowed to gather 10 lbs. of nuts per season.

The pinyon nut crop varies each year in quantity. Occasionally a year comes along where bumper quantities can be found over wide areas of the pinyon forest. Trespass commercial harvesting has occurred and vigorous prosecution has resulted.

Christmas Tree Cutting

Christmas tree cutting has been an ongoing activity for the past years, mostly in the Chimney Peak area by two non-profit organizations; Lake Isabella Boy Scouts of America and Ridgecrest Explorer Scouts. Each group harvests 100 trees from chained areas and dry meadows which the trees have encroached into. Many areas with suitable trees are located in Wilderness Study Areas where cutting is not allowed. Only inside Long Valley Loop Road can cutting be done. The two groups raise money from tree sales to fund these yearly projects while the Bureau benefits from thinning of young invading pinyon pine trees into the old chaining and dry meadows.

Black Stain Root Disease

The presence of Black Stain Root Disease in the Chimney Peak Area was confirmed by the U.S.D.A. Forest Pest Group in 1983. Black Stain Root Disease is caused by the fungus Ceratocystis wageni (Smith 1983). The disease attacks the roots and root collars of pinyon pine, imparting a dark black stain to the affected xylem. The disease spreads from tree to tree by root contact creating root disease centers. Long distance spread is suspected to be by means of an insect vector. The suspected length the fungus can live in dead trees and stumps is less than two years.

In 1983, it was estimated that over 2,000 acres of pinyon pine in the Chimney Peak Area were infected with the disease. It was predicted that if nothing was done, most of the severely infected pinyon pine stands would be lost. In 1985, a test program was initiated to remove dead and dying pinyon pine to more fully utilize woodland resources and reduce the potential fire hazard. Bureau fire crews were used to cut standing dead trees and a public lottery was held to dispose of the 30 cords of wood. In the fall of 1985, several piles of slash were burned by Bureau fire crews. In the spring and summer of 1987, additional treatment areas were marked but not cut.

Private Lands

About a dozen parcels of private land occur within the CRMP, ranging in size from 120 to several thousand acres. These usually occur in meadow areas, with most of the lands centered around Kennedy Meadows. This is a low-key, mountain homesite community with very limited services and slow growth. Access to some of the private lands crosses BLM lands. The Tulare County portion of the area recently underwent a county plan amendment that set the minimum parcel size at 160 acres. The Kern County portion of the CRMP is limited to a 20-acre minimum lot size.

VII. Objectives

Cultural

C1[1] Evaluate the threats to known cultural resources and protect them from vandalism and other agents of site deterioration and damage.

C2 Protect known Native American traditional use areas, such as pinyon collection, ceremonial and religious areas from damage.

Recreation

REC1 Provide for a diversity of recreational opportunities.

REC2 Maintain Visual Resource Management classes for campgrounds and the Pacific Crest National Scenic Trail (PCNST) corridor and implement the PCNST Recreation Area Management Plan.

REC2 Implement off road vehicle designations.

Transportation

T1 Designate and maintain a permanent transportation network that meets the needs of the public, including those identified by the Coordinated Resource Management Plan Group.

Range Management

RNG1 Maintain or improve ecological site conditions to maximize forage production on the following site write-up areas:

Site Write-up Area Number	Percent Composition by Key Species			
PB 41S	desert bitterbrush*	desert needle grass*	Mormon tea*	
PB 42S	desert bitterbrush*	desert needle grass*	Mormon tea*	
PM 04S	pine bluegrass*	Ceanothus*		
RL 11	buckwheat*	bluegrass*	Sandberg bluegrass 1%	
RL 6	antelope bitterbrush 2%	crested wheat 20%		
RL 4	antelope bitterbrush 1%	crested wheat 20%	Sandberg bluegrass 3%	
P 8	desert needlegrass 4%	buckwheat 6%	desert bitterbrush 8%	
R 1	buckwheat 19%	desert bitterbrush 2%		
R 3	desert needlegrass 11%	buckwheat 15%	desert bitterbrush 2%	
PM 21	sagebrush 28%	green rabbitbrush 7%	desert bitterbrush*	Mormontea*
PM 27	sagebrush 5%	rubber rabbitbrush 6%	desert bitterbrush 7%	
PB 20	bluegrass 9%	beardless wildrye 17%	sedge 26%	willow 16%

* To be determined from baseline transects

RNG2 Design grazing systems to provide operator flexibility, compatibility between seasons of use on the balance of the CRMP area, and compatibility with livestock operator use on U.S. Forest Service permits or controlled private lands.

RNG3 Maintain or improve riparian conditions for forage production (including wet meadow and springs).

RNG4 Maintain optimum annual forage production by protecting the soil surface with a residual mulch of annual plants and organic litter.

RNG5 Alter ecological site seral stages in the fire dependent pinyon woodland to a seral stage consisting primarily of desert bitterbrush, sagebrush, mormon tea, and desert needlegrass to maximize forage production.

Watershed

WATER1 Investigate the cause of poor water quality in the Long Valley Creek and propose solutions.

WATER2 Improve the riparian area condition rating for Long Valley Creek and Boy Scout spring from fair and poor to good by 1988. Control gullying and headcutting, and improve bank stability on Long Valley Creek by 1989.

WATER3 Reclaim several of the small meadows into wet meadows to increase forage production, improve visual aesthetics and wildlife habitat quality.

Woodland

WOOD1 Study the effects of forest pests on the pinyon pine population to determine overall management options.

WOOD2 Allow the harvest of pinyon nuts in areas that would be acceptable to Native Americans, private land owners, the general public and commercial interests, in a manner that protects each interest and is compatible with fluctuating availability.

WOOD3 Allow collection and sales of firewood and Christmas trees to meet the growing demand in the area within environmental constraints.

Wildlife

W1 Manage riparian areas (stream banks, wet meadows, springs) to protect riparian vegetation and stabilize erosion. Per Executive Order 11990 recognize and declare the critical importance of wetland and riparian habitats to wildlife.

W2 Manage the area as year round and critical deer winter range. Help maintain the present overall long term upward trend in the Monache deer herd population by improving habitat conditions in the Chimney Peak Area.

W3 Continue to cooperatively manage with the California Department of Fish and Game the CRMP area as a portion of the Monache-Walker Pass National Cooperative Land and Wildlife Management Area. As specified in the NCLWMA agreement with the California Department of Fish and Game, insure that adequate water is available for upland game.

Realty

RLTY1 Where resource values warrant, work toward improved land patterns to facilitate protection and management of natural resources.

RLTY2 Eliminate unauthorized uses of public lands while allowing access for private landowners consistent with Bureau Policy.

Minerals

M1 Manage the area as open to mineral exploration and development except where development will affect the designated VRM Class II and III ratings for the PCNST. Insure all mineral activities have appropriate authorization.

M2 Manage the area to reduce hazards due to mining operations.

Rare, Threatened and Endangered Plants

RARE1 Manage to enhance habitat for Phacelia novenmillensis and any other sensitive species observed on public lands in the area.

Law Enforcement

LAW1 Respond to reported unauthorized activities and provide a law enforcement presence to discourage vandalism, theft and other unauthorized activities on public land. Encourage public reporting of suspected unauthorized uses.

Administration

A1 Respond to local government requests for public land and resources for community expansion and protection needs.

VIII. Technical Review Team Recommendations

A. Long Valley Technical Review Team Recommendations
August 16, 1986

Objective	Planned Action Number	Planned Action Description

Recreation

REC3[1] 1. Close the old road which parallels the loop road on the southern end of the TRT area. Consider as an existing road the road that leads past spring 7-24-2A, and the road leading to Table Mountain.

Transportation

T1 2. Install a gravel collection drain and pipe under the road at the intersection of the loop road and Rockhouse Basin Road, to keep normal runoff from going onto the road surface.

T1 3. Double the capacity of the existing culvert by adding an additional culvert of the same size. Set the new culvert to one side of the drainage level with the existing sediment. Set the culvert at a 2-4% slope to insure it remains self cleaning.

T1 4. Dig out the small buried culvert, install a double sized culvert and add an elbow at the exit end to guide water into the downstream channel.

T1 5. Install an Arizona crossing or gabion at the Long Valley Campground road stream crossing. An Arizona crossing is preferred if funding is available.

T1 6. If it can be demonstrated cost effective, install Arizona crossings where sediment load is a problem; otherwise, maintain existing culverts.

Range

RNG1 7. Construct a drift fence and cattle guard at the east edge of private land at Big Foot Spring.

RNG1 8. Monitor key perennial forage plant composition and utilization, allowing a maximum average yearly utilization of 50% current annual years growth throughout the plan area. Key monitoring areas will be determined by the Bureau, California

[1]corresponds to Objective Abbreviation in section VII., Objectives.

Department of Fish and Game and grazing operators. Actual use will be documented.

RNG1 9. Install a gate for the movement of pack stock at the Rockhouse Road fence on the U.S. Forest Service boundary.

RNG1, RNG2 10. Normal authorized use is as follows:

a. 106 cattle from October 1 to November 30 at 100% FR = 212 Animal Units Months.

b. Use is to be made by Sprague Ranches only.

c. Suspended non-use (potential future use currently held in reserve). Smith Ranch 165 cattle - 330 Animal Unit Months.

*Total Preference = 542 Animal Unit Months.

RNG2 11. Grazing fees will be billed from actual use records, which are to be submitted by the operator 15 days after the end of grazing.

RNG2 12. Two weeks of flexibility without prior notice on either side of the normal grazing season of October 1 to November 30 will be allowed, to accommodate the U.S. Forest Service permit dates.

RNG3 13. Normal grazing dates will be October 1 to November 30, which should help reduce pressure on riparian areas, and allow key forage plants to set seed and replenish root and stem reserves.

RNG3 14. Develop spring 7-12-4A and protect with fencing. Water will be piped to a water trough, which will supply livestock water to the north end of Long Valley.

Watershed

WATER1 15. Investigate the orange colored water in Long Valley Creek through water quality sampling and an evaluation of the effects of land uses by the end of FY 88. Determine whether the recreating public should be informed of the water quality problem.

WATER2 16. Install erosion control structures per Bureau design on Long Valley Creek from the campground entrance road and downstream, as needed.

Wildlife

W1 17. Fence the spring source at spring 7-3-6A.

W1 18. Fence the unnumbered spring source 1,000 feet northeast of spring 7-24-2A, but leave the meadow area unfenced since the proposed livestock use season should protect it. Periodically re-evaluate the meadow area at the end of the grazing season.

W1 19. Periodically re-evaluate wetland and spring areas to insure protection of habitat per Executive Order 11990.

W2, W3 20. Establish monitoring sites at Rockhouse and the existing exclosure area for deer utilization and browse monitoring. Maintain the existing exclosure and add a forth wire. Key browse plants would include desert bitterbrush, antelope bitterbrush and buckbrush.

W3 21. Install two more guzzlers in cooperation with the California Department of Fish and Game. In addition, clean out the middle Long Valley guzzler.

B. Kennedy Meadows Technical Review Team Recommendations
October 22, 1986

Cultural

See Pinyon Woodland Management

Recreation

REC1 22. Recommend that the Bureau develop a foot and equestrian trail from Big Pine Pass to upper Scobie Canyon to Deer Spring and connect it with the old Phelan Road.

REC3 23. Keep existing primitive dirt roads open to provide recreation opportunities and fire access, except for the following:

a. E 1/2 Section 29, T. 23 S, R. 36 E, MDB&M (presently gated off).

b. Road through Sprat Meadow (NE 1/4 Section 27, T. 23 S, R. 36 E, MDB&M).

c. Deer Spring Road (SW 1/2 Section 31, T. 22 S, R. 37 E, MDB&M.

REC3 24. Place a restricted travel sign, a no littering sign, and other appropriate information at the access point for each road.

Transportation

T1 25. Investigate the acquisition of legal public access to Deer Spring.

Range 26. For Scobie allotment normal authorized use is as follows: 36 cattle from June 1 to November 1 at 100% FR = 182

RNG1 27. Build a drift fence at the head of Five Mile Canyon and between Deer Spring and upper Scobie Canyon.

RNG1 28. Develop a monitoring site east of Big Pine Meadow on the north side of Big Pine

Pass.

RNG1 29. For the Kennedy-Lamont Meadow pasture, which is located within the Kennedy Meadows TRT and the Chimney Peak TRT areas, normal authorized use is as follows:

260 cattle from July 1 to October 1 at 100% FR = 789 AUM's

RNG1 30. Fence and develop spring in the NE 1/4 Section 27, T. 23 S, R. 36 W, MDB&M.

RNG3 31. Maintain the stock tank at Boy Scout Spring.

RNG3 32. Develop a trough and fence the wet spring area at Deer Spring. Install a drift fence at the top of Phelan Road to keep cattle west of the Sierra Crest.

RNG3 33. Develop and fence the small spring in the SE 1/4 Section 17, T. 23 S, R. 37 E, MDB&M. Also, develop a monitoring site in this area.

Watershed

WATER1 34. Re-sample Boy Scout Spring for coliform contamination. If water tests are acceptable, clean out the old spring box and install a culvert on top of it to seal out surface flow. Fence around the spring box area and re-route the drainage channel away from the spring box.

WATER3 35. Install rock check dams to control erosion of meadow areas at the following locations:

a. Upper Scobie Spring, NW 1/4 Section 17, T. 23 S, R. 37 E, MDB&M.

b. Dry meadow in NE 1/4 Section 31, T. 23 S, R. 37 E, MDB&M.

c. Boy Scout Spring (re-install earthen dam with spillway) and north along this drainage.

d. SW 1/4 Section 35, T. 22S, R. 36 E, MDB&M.

Woodland

WOOD2 36. In good pinyon nut crop years, designate specific commercial pinyon nut sale areas. Choose sale areas to avoid conflict with Native American traditions.

WOOD3, RNG5 37. Develop a firewood and Christmas tree sales program to make these resources available to the public by permit. Designate specific sale areas along existing roads for use on a rotating basis. The program should be a thinning program, concentrating initially on diseased areas.

WOOD3, RNG5 38. Consider limited commercial firewood harvests in some areas. Maintain a green belt along the Kennedy Meadows Road, allowing thinning, but no clear cutting. Allow cutting of standing dead trees during firewood cuts. Do not allow any clear

cutting, even of buffer zones. Monitor and field administer the program from the Kennedy Meadows area. Consideration will be given to Native American and cultural concerns. The development of new roads is discouraged, since existing roads provide access to enough public lands to meet demand for these products.

Wildlife

W1, C1	39.	Consideration will be given to wildlife needs and cultural concerns in any fencing of spring and meadow areas.
W1	40.	Plant some cottonwood trees around Boy Scout Spring to improve both wildlife habitat and visual effects.
W3	41.	The Bureau should install small animal escape ramps in all existing and new water troughs.
W3	42.	Develop a spring source or install a guzzler on the ridge southwest of Big Pine Meadow for wildlife watering.
W3, RNG5	43.	Investigate vegetation manipulation for wildlife habitat improvement in the following areas: a. The hills west of Kennedy Meadows Road. b. Northeast of Big Pine Meadow. c. North Canyon area (highest priority).

General

LAW1	44.	Initiate regular law enforcement patrols (budget dependent) in the TRT area to protect cultural and woodland sites, regulate recreation use, etc. Timing and details of patrols will be worked out by the Bureau.
WATER3, W1	45.	The Kern Valley Resource Conservation District should be contacted by the Steering Committee regarding erosion control opportunities in the TRT area. These opportunities involve gullying problems in meadow areas.
WOOD1	46.	The Kern Valley Resource Conservation District should make property owners in the area aware of Black Stain Root Disease and its control.
RLTY2, W3, WOOD1, WATER3, W1	47.	Supply an information package to the Kennedy Meadows Property Owners Association covering rights-of-way, future cost, changes, and potential pitfalls if no right-of-way exists to private lands. Also, an information package covering wildlife, animal passage, black stain root disease, and erosion control opportunities should be distributed.
R5, W2	48.	Develop a fire use plan in areas where fire would be beneficial to the ecosystem. This would benefit decadent pinyon and brushy areas.

C. Canebrake-Walker Pass Technical Review Team Recommendations
March 18, 1987

Cultural

C1 49. Close the spur road at Canebrake Seep using large boulders. Clean up the existing trash and debris. Plant natural shrubs on the closed spur road and re-vegetate with red brome only on the road or on heavily impacted areas. Avoid impacts to the archaeological resources (KER 306) during rehabilitation.

C1 50. Leave the existing Antiquities Act signs at the two pictograph sites (KER 317 and 878). Increase patrols by using existing personnel, but preferably by the addition of one Bureau Ranger. Install a small, inconspicuous information sign at each pictograph site. The sign should explain the fragile nature of the resource, and that touching the rock face or collecting artifacts can damage the site. In addition, the sign should mention the importance of preserving California's prehistoric past.

C1 51. Provide increased patrol at the Spanish Needle archaeological site (KER 798) by the addition of one Bureau Ranger. Leave the existing Antiquities Act sign in place. Install an additional inconspicuous sign at the bedrock mortar. Encourage the private land owner to fence the 80-acre parcel to the west of public land and place gates on the existing road. Extend and maintain a northern drift fence to keep cattle out of the cultural site area. In addition, remove the existing fence on the south side of the road and use these materials to build a drift fence across Spanish Needle Creek. Monitor the effectiveness of fencing to protect the site. If protection is inadequate, consider limited test excavation of the site.

C1 52. Monitor erosion on the Stagecoach Road and install water bars only if needed.

Recreation

REC2 53. Provide a large information board at the Pacific Crest National Scenic Trail Head campground and at Walker Pass. The information board will provide information on off road vehicle restrictions, fire regulations, points of interest, encouragements for keeping public lands clean and campground brochures for the area.

REC 54. Provide two campsites at Walker Pass for vehicle camping. Orient fire rings to shield fires from the prevailing wind.

REC2 55. Relocate the proposed fire station from the Walker Pass campground. A site closer to Canebrake which has utilities is recommended. The trail head campground is the least desirable location that should be considered. The station would adversely affect the recreational values of the campground site.

REC1 56. Use volunteer groups to clean up trash at the Walker Pass Trail Head, the Squatter's Cabin on Canebrake Creek, and at the large tree at the mouth of Bert's Canyon. Post these areas as "please pack out your trash", and place a small resource sensitivity sign at each site.

REC1, A1 57. Recommend to Cal Trans to consider a rest area off Highway 178 near the big tree at the head of Bert's Canyon or another public parcel east of Canebrake.

REC1 58. Seek a public easement across private land in Cow Canyon. Leave the construction spur trail intact for Pacific Crest National Scenic Trail users.

REC2 59. Develop one spring site for a horse trough in Spanish Needles Canyon. Fence the spring source on upper Spanish Needle Creek on the north side of the drainage near the Pacific Crest National Scenic Trail. Develop a spur trail to the horse trough.

Transportation

T1 60. Clean out the culvert at Canebrake Seep road crossing.

T1 61. Just west of the locked gate in Spanish Needle Creek, place clean gravel on the existing roadbed where the spring runs across the road.

Range

RNG1 62. Install two drift fences to complete the division of the Walker Pass Pasture as proposed, if needed. Investigate if an existing drift fence has been installed.

RNG1 63. Establish four monitoring sites for ecological site trend and condition on the Walker Pass Pasture. Authorize use on the Walker Pass Pasture at:

a. 142 cattle from January 1 to June 30 at 92%FR = 781 Animal Unit Months

b. Use to be made by Alexander Estate only.

RNG1 64. Adjust the grazing season for the Spanish Needle Creek Allotment to:

a. 20 cattle from April 1 to May 30 at 100%FR = 40 Animal Unit Months.

RNG2 65. Recommend Canebrake Flat be allotted to Sprague Ranches, and that Cow Canyon be allotted to the Alexander Estate. All needed range improvements will be installed to implement this arrangement as follows:

a. A drift fence will be installed as low in the mouth of Cow Canyon as possible.

b. A drift fence will be installed across the Stagecoach Road, just east of the ridge crest to avoid visual impacts.

c. Reconstruct Cow Canyon Spring as specified under Wildlife #71.

RNG3 66. Investigate the development of an upper spring in Cow Canyon.

RNG4 67. Accept the prescribed annual range mulch levels of 300 pounds per acre for the Canebrake Pasture, but evaluate annually at two monitoring sites to insure erosion problems do not result from these levels. Livestock use for an average season would be authorized at:

a. 194 cattle from January 1 to June 30 at 82%FR = 952 Animal Unit Months.

b. Use is to be made by Sprague Ranches only.

Wildlife

W1 68. Fence the tank and float valve box at Canebrake Spring. Repair the float valve and provide a protective cover. Fence the wet area at the spring source, including the rock outcrop above the spring source to provide protection of archaeological resources. Locate the spring box and include this inside the fence. Plan maintenance of these facilities once they are developed.

W1 69. Research and monitor the trend of the willow community at Canebrake Spring. Include burning the dead willows to promote new growth in the area.

W1 70. Gap fence the wet area near the willow clumps at Coyote Spring, using the rocky outcrops as barriers. Design the fence with sensitivity to aesthetics and cultural resources.

W1 71. As part of the proposed grazing system in Cow Canyon place a collection box at the head of the pipe in the creek, fence collection box, and continue the fence down to the wet area by the livestock trough. Design the fencing by the trough to not block the vehicle turn-a-round at the end of the road. Clean out the pipe where it enters the water trough and provide an overflow pipe if necessary.

W1 72. Investigate what is causing the digger pines in Cow Canyon drainage to die. Consider a sanitation and salvage cut to revitalize the tree component of the riparian zone.

W1 73. Fence to protect the wet area at Canebrake Seep, however this project would be of low priority for the Technical Review Team area.

W1 74. At Rat Spring, relocate the existing livestock trough to the grassy flat further away from the spring. Fence the spring source and associated wet meadow area. Design the fence to include the wash bottom, the old fence corner post near the spring, and the fallen dead tree. The exclosure should be about one acre in size.

W3 75. Provide small animal escape ramps in the following livestock troughs:

a. Canebrake Spring

b. Pilot Well

c. Rat Spring

W3 76. With logs or rocks, define a parking area at Rat Spring by the corral off Canebrake Road.

W3 77. Use volunteer groups to adopt spring projects for the development, repair and

maintenance of these projects. Potential groups include: YMCA, Boy Scouts, local service groups such as the Kiwanas and Rotary clubs, Sierra Club, Audubon Society, local schools, Future Farmers of America, Museums, and the Kern Valley Resource Conservation District.

W3 78. Cooperate with the California Department of Fish and Game if a bighorn sheep transplant is proposed for the area. Develop a bighorn sheep viewing site on Highway 178 if the sheep transplant is successful. Choose a site that will also serve to protect a representative sample of the Joshua tree community.

Administration

A1 79. A storage tank for fire truck refill should be placed at the Walker Pass campground or Canebrake Spring. Technical Review Team member Jack Connell presently has a refill source above Walker Lodge.

A1 80. Request Cal Trans to post a "cattle on highway" sign near Canebrake on Highway 178. Monitor cattle use on Highway 178 to determine if additional safety measures are needed. Should Cal Trans realign Highway 178 in the future, require fencing of the new right-of-way.

General

C1,REC1, REC3, LAW1 81. Develop a public information brochure to be placed at local businesses to include information on:

a. General cultural overview and preservation of California's prehistoric/historic past.

b. Off road vehicle designations for the area.

c. Recreation and camping opportunities for the area.

d. Litter policy and request for compliance.

e. Campfire requirements.

f. Range improvement and public property maintenance.

RLTY1 82. Provide a news release for the Isabella media concerning Bureau rights-of-way information, future cost changes, and potential problems if no right-of-way exists to private land. Send the information package to Mr. Stan Wagner for distribution to local land owners.

LAW1 83. Recommend that the Bureau request funding for a Bureau Ranger position in the Caliente Resource Area to increase the present level of resource protection and patrol. Emphasize enforcement of off road vehicle designations, enforcement of regulations, protection of cultural resource sites and known areas of special use and concern to the Native Americans, protection of public and private property located on public land, and prevention of illegal trash dumping.

C1, REC1, REC3, LAW1 84. Develop an education program on public land resource management and points of interest to include:

a. Brochures as previously discussed.

b. News releases in local newspapers.

c. Fire station handouts.

d. Information sign at Walker Pass Trail Head and at the Walker Pass monument.

e. Information talks to schools in the Isabella and Ridgecrest area.

D. Chimney Peak Technical Review Team Recommendations
August 25 and 26 1987

Cultural

C1 85. Clean up the trespass debris at Deer Peak retreat and plant vegetation in the open area to discourage further camping and parking on the archaeological site. Block off with rocks the entry road that leads into the area. Restore and perhaps camouflage the midden soils in an appropriate manner.

C1 86. Use rocks to delineate a parking area at the picnic site and to block the spur roads leading off the main parking area. Patrol and monitor the archaeological area (KER 62) to determine if other protective measures are needed.

C1 87. Block the turn-in at the vandalized archaeological site. Increase patrol of both sites. If a method to stabilize pictographs from further natural deterioration is developed, consider using it at site TUL-477, taking into consideration the concern of the Native Americans. If the above protective measures are not effective, consider limited testing of endangered sites in the Lamont Meadow area.

C1 88. Continue to patrol the Chimney Creek campground to discourage damage to the cultural sites. Consider limited testing of the site if new development in the campground area is proposed.

C1 89. Set up patrol and monitoring studies to determine if archaeological sites along the Pacific Crest National Scenic Trail are being damaged by casual collection of artifacts by trail users or perhaps by commercial looting. If necessary, implement a limited systematic collection of lithic detritus that is visible from the Pacific Crest National Scenic Trail to deter future casual collection of archaeological resources. Consider placing a sign-in book along the Pacific Crest National Scenic Trail to evaluate the amount of use on the trail.

C2 90. Provide protection to areas known to be of special use or concern to the Native American community. These areas would include religious, burial and traditional use areas.

Recreation

REC2 91. Construct four 25-foot pipe corrals at the Chimney Creek campground. Contact Jerry Jelock of the Forest Service to obtain copies of a similar horse corral planned for use at the Black Rock trail head facility.

REC2 92. Construct a group campsite adjacent to the horse corral parking area. Design the campsite parking area to accommodate horse trailers.

REC2 93. Solicit pledges from groups to adopt portions of the Pacific Crest National Scenic Trail inside the Chimney Peak TRT area. The groups would be given trail maintenance responsibilities; and, in return, the Bureau will install a sign on the trail with the group's name.

Transportation

T1 94. Install a locked gate approximately 500 feet above where the road leading into the pond at Chimney Meadow meets the existing fence. Install drift fences on either side of the gate to discourage vehicles from driving around the gate. Clear a wide area at the fence for vehicles to turn around. Put up a standard Bureau "this road closed" sign at the gate. Put private land signs on the existing fence by the pond, and at least one sign that reads "private land behind this sign" with a Bureau emblem on it. The gate will have a private lock and a Bureau lock.

T1 95. Consider paving Canebrake Road or provide road base as available.

Range (for authorized grazing use refer to planned action 29)

RNG1 96. Set up two monitoring sites, one within the chaining area and another just north of Lamont Meadow. Key forage species for the chaining area will be crested wheatgrass, bitterbrush and bluegrass. Key forage species for the area north of Lamont Meadow will be bitterbrush, ceanothus, grasses, and mountain mahogany.

RNG2 97. Construct a ten-acre holding corral adjacent to the north side of Smith Field. The specific fence design will take into consideration cultural, wildlife, and other sensitive resource concerns.

RNG3 98. Develop spring number 7-26-1A by installing a spring box and water trough. Protectively fence the spring and install a small animal escape ramp in the trough.

RNG3 99. An original recommendation was made to redevelop spring number 7-18-2A by replacing the old spring box, installing a protective fence and installing a water trough for livestock. After a check of the spring inventory files, it is recommended that the Bureau abandon spring 7-18-2A and develop 7-18-5A for both livestock and Pacific Crest National Scenic Trail users.

RNG3 100. Replace the fence at spring number 6-21-36A by moving the fence outside the wet seep area.

Woodland

WOOD1 101. Consider commercial sales to remove diseased trees for hard to access areas or areas with especially sensitive resources. Carefully consider administrative costs before embarking on a commercial sale. Consult the local California Department of Forestry and Forest Service for assistance in setting up the contract. Commercial sales should be used only if public sales are not adequate.

WOOD1 102. Instead of recommending a modified fire suppression plan for the Technical Review Team area, look to other means of vegetation manipulation which would yield the same effects. Look to Hill Bill and other contributed funds for funding of such projects.

WOOD1 103. Monitor Black Stain Root Disease treatment pockets for the reestablishment of understory species, the rate of disease spread to healthy appearing trees and survival of young pinyons in slash pile burn areas. Use infrared aerial photographs to monitor the spread of the disease and to plan project locations. If monitoring shows bitterbrush and ceanothus slow to re-invade, consider seedings or plantings.

WOOD3 104. Delineate firewood cutting areas and allow the public to cut the standing dead wood. Once the cutting pocket is cut out move the area to a new location. Use the fire crew to pile and burn slash. Issue permits from the Chimney Peak Fire Station, Ridgecrest, Bakersfield, and various one time only locations.

WOOD3 105. Continue to use wood removal as the predominant method of Black Stain Root Disease management. There may be instances where a 75-foot buffer may be used to halt the spread of the disease, and there may be areas where, due to inaccessibility, and cultural or other resource concerns, pockets will be left alone.

Wildlife

W1 106. Monitor stream conditions and use stream inventory information to determine if cattle are impacting Chimney Creek. If necessary, work with the cattle operator to install fences along Chimney Creek. Consider the use of in-stream structures to improve creek conditions. Start as close to private land as possible, and invite the private landowners to participate in the project.

W1 107. Mend the wire fence inside the Chimney Creek campground. Construct step-overs or turnstiles for people to use. Install signs on the fence asking the people to use the turnstiles.

W1 108. Fence the two meadows and associated seeps below the cattleguard in the Chimney Creek campground. Armor the headcut below the larger meadow with rocks. If rocks are not effective, install in-stream structures to mend the headcut area.

W1 109. Monitor the meadow area above the cattleguard in Chimney Creek campground to see what effect the grazing prescription has on an unprotected area.

W2 110. Set up vegetation monitoring studies in the chaining areas to determine plant

species composition for the different chaining locations. Include monitoring of the bitterbrush component and a comparison of burned and unburned areas. Set up monitoring in Black Stain Root Disease treated and untreated areas.

W2, W3 111. Set up wildlife monitoring studies to determine what type of use the different chaining areas receive. Combine this information with vegetation monitoring data to determine where vegetation manipulations are needed. Concentrate on vegetation users such as small mammals using trapping studies.

W3 112. Survey the Chimney Peak area to locate suitable cliff nesting locations for raptors, especially the peregrine falcon, prairie falcon and golden eagle. Periodically resurvey uninhabited but suitable locations. Annually monitor use of known nesting sites. Investigate the potential for releasing peregrine falcons.

Realty

RLTY1 113. If opportunities for acquisition of private inholdings with resource values arise, purchase or exchange should be pursued.

RLTY2, T1 114. Encourage private landowners to apply for rights-of-way when their access roads cross public lands. Consider reciprocal rights-of-way to provide walk-in and equestrian access across private lands to reach public land.

Mineral

M1 115. Organize a Bureau, Mining Council, Forest Service and County (Tulare and Kern) group to evaluate potential mining trespass situations. Investigate the use of County agencies, such as the Health Department, Tax Assessor's Office and Building Inspector's Office to regulate structures on public land.

M2 116. Investigate the use of heavy equipment to fill in and slope the open barite stopes in areas near the road. Consider using dynamite to loosen the rock and make recontouring easier. Move the gate leading to the communication site below the pit area.

Rare, Threatened and Endangered Plants

RARE1 117. Conduct an inventory for Phacelia novenmillensis in the historical locations during the month of May. Set up monitoring studies on those sites that contain the plant.

Law Enforcement

LAW1 118. Recommend that a Ranger be provided to patrol the entire Chimney Peak area for cultural concerns, firewood theft, and other resource concerns.

IX. Subcommittee Recommendations

A special subcommittee was established by the steering committee to address an issue that surfaced after review of the Canebrake TRT recommendations. The issue evolved around the access road from Highway 178 into the Scodie Mountains by way of Jacks Creek. Their recommendation is as follows:

Planned Action Number 119:

Recommend the Walker Pass CRMP group identify this concern as an issue that needs to be addressed with the U.S. Forest Service. The access issue will depend on how the Jacks Creek drainage will be managed. We recommend a citizen committee with agency representation be formed to review the management options that have surfaced through the Walker Pass CRMP process.

Management Options Considered

1. Leave road and access open.
2. Close vehicle access at Highway 178 (foot and equestrian use only).
3. Close access road at saddle leading to Jacks Creek.
4. Allow access to Jacks Creek, but restrict vehicle access up Jacks Creek.

The committee recommended that option #4, with a primitive campsite be considered by the Forest Service or BLM. The campsite should be on the first flat on west side of Jacks Creek, at the BLM boundary, or higher up into the canyon.

X. Monitoring

Resource monitoring has been separated into two categories 1) resource monitoring that was recommended by the Technical Review Teams (Table 2) and 2) planned actions recommended by the Technical Review Teams that require resource monitoring to determine effectiveness (Table 3). The following tables list resource monitoring by planned action number. Monitoring objectives and methods are briefly described. Detailed monitoring methodologies are contained in the South Sierra Foothills Monitoring Plan.

Table 3. Resource Monitoring recommended by Technical Review Teams, listed by Planned Action Number.

Planned Action #	Location	Objective for Monitoring	Methodology as described in the South Sierra Foothills Monitoring Plan
8	to be determined	adjust livestock grazing to not exceed 50% utilization on current year's growth and to maintain or improve key forage species frequency of occurrence.	V.A.2.* Perennial Forage Utilization, pg.8.** V.B.1. Ecological Site Condition and Trend Photo Plot & Quadrat Frequency Method, pg. 9
15	Long Valley Creek	hazard of orange coloration in creek water	Appendix 1. Monitoring of Water Quality and Erosion in the South Sierra Foothills Planning Area.
18	spring 7-24-2A	effect of grazing season on unfenced meadow.	Appendix 3. Riparian Habitat Measurements
15	Long Valley TRT	determine if protection of additional riparian sites is necessary.	Appendix 3. Riparian Habitat Measurements.
20	Rockhouse	deer use and browse species utilization.	V.B.2 Deer Winter Range/Yearlong Habitat, pg.10
20	CDF&G exclosure	deer use and browse species utilization	V.B.2. Deer Winter Range/Yearlong Habitat, pg.10
28	Big Pine Meadow	livestock utilization and ecological site condition trend	V.A.2. Perennial Forage Utilization, pg.8 V.B.1. Ecological Site Condition & Trend Photo Plot & Quadrat Frequency Method, pg. 9.
33	KM stop 1	livestock utilization and ecological site condition trend	V.A.2. Perennial Forage Utilization, pg.8 V.B.1. Ecological Site Condition & Trend Photo Plot & Quadrat Frequency Method, pg. 9.
49	Spanish Needle Creek	determine effectiveness of site rehabilitation to deter future impacts.	Ranger Patrol, periodic archaeologist inspections and photographs.
50	Spanish Needle Creek	deter future impacts and determine effectiveness of antiquities and information sign	Ranger Patrol, periodic archaeologist inspections and photographs.
51	Spanish Needle Creek	effectiveness of fencing and signing to protect cultural site.	Ranger patrol logs, periodic archaeologist inspections and photographs.
52	Stagecoach Road	install water bars if erosion is heavy.	Ranger patrol logs, periodic archaeologist inspections an photographs.
63	Walker Pass Pasture	ecological site trend and condition.	V.A.2. Perennial Forage Utilization, pg.8. V.B.1. Ecological Site Condition and Trend Photo Plot & Quadrat Frequency Method, pg. 9.
67	Canebrake Pasture	mulch levels	V.A.1. Mulch Management, pg.6

Planned Action #	Location	Objective for Monitoring	Methodology as described in the South Sierra Foothills Monitoring Plan
69	Canebrake Spring	trend of willow community	Appendix 3. Riparian Habitat Measurements.
80	Canebrake	do cattle on the highway pose enough of a safety threat to warrant a sign near Canebrake	Regular Ranger patrols to document livestock hazard
85	Chimney Peak	rehabilitate site and determine effectiveness to deter future encroachment on site.	Ranger patrol logs, periodic archeologist inspection and photographs.
86	Picnic Site (KR-62)	to protect site and determine if additional protective measures are needed	Ranger patrol logs, periodic archeologist inspection and photographs.
87	Lamont Meadow	if protective measures are not effective consider limited testing of cultural sites.	Ranger patrol logs, periodic archaeologist inspections and photographs.
88	Chimney Creek	to monitor effectiveness of site patrol and protect the site and consider testing of site should future development in campgrounds be proposed	Ranger patrol logs periodic archeologist inspection and photographs.
89	Pacific Crest National Scenic Trail	are sites on the PCNST being damaged by casual collection/looting	Ranger patrol logs, periodic archaeologist inspections and photographs.
90	Chimney Peak and other pertinent areas	to protect known Native American traditional and special use areas from adverse impact.	Ranger patrol log, periodic archeologist inspection and photographs
96	chaining	livestock utilization and ecological site conditions trend.	V.A.2 Perennial Forage Utilization, pg. 8. V.B.1 Ecological Site Condition & Trend Photo Plot-Measurement Method, Photo Plot, & Quadrat Frequency Method, pg.9.
96	North of Lamont Meadow	livestock utilization and ecological site condition trend.	V.A.2 Perennial Forage Utilization, pg. 8. V.B.1 Ecological Site Condition & Trend Photo Plot, & Quadrat Frequency Method, pg.9.
103	Chimney Creek	reestablishment of understory in Black Stain treatment areas.	V.B.1. Ecological Site Condition & Trend Photo Plot & Quadrat Frequency Method, pg.9.

Planned Action #	Location	Objective for Monitoring	Methodology as described in the South Sierra Foothills Monitoring Plan
106	Chimney Creek	cattle impact in riparian zone	Appendix 3. Riparian Habitat Measurements.
108	Chimney Creek Campground	effectiveness of rock armor on headcut.	Appendix 3. Riparian Habitat Measurements.
109	Chimney Creek Campground	effect of grazing prescription on unfenced meadow and stream.	Appendix 3. Riparian Habitat Measurements.
110	chaining	plant species composition including bitterbrush, in different chaining and burned and unburned areas.	V.B.1 Ecological Site Condition & Trend Photo Plot & Quadrat Frequency Method, pg. 9.
110	Black Stain treatment areas	plant species composition in treated and untreated areas.	V.B.1. Ecological Site Condition & Trend Photo Plot & Quadrat Frequency Method, pg. 9.
111	chaining	wildlife use of different chaining area.	V.B.2 Deer Winter Range/Yearlong Habitat, pg.10
117	Chimney Peak TRT	populations of Phacelia novenmillensis	V.B.6. Sensitive Plant, pg.12.

* refer to this section in the South Sierra Foothills Monitoring Plan
** page number in the South Sierra Foothills Monitoring Plan

XI. References

Bureau of Land Management, 1987. technical Review Team Information Packages. On file at the Caliente Resource Area Office, Bakersfield, California.

Clough, Helen. 1976. Cultural Resource Evaluation of the Lamont Meadow and Morris Peak Segments of the Pacific Crest National Scenic Trail. Unpublished report on file with the Bureau of Land Management, Bakersfield.

Garfinkel, Alan P., Robert A. Schiffman and Kelly R. McGuire, Editors. 1980. Archaeological Investigations in the South Sierra Nevada: the Lamont Meadow and Morris Peak segments of the Pacific Crest National Scenic Trail. Cultural Resources Publications: Archaeology.

Glassow, Michael A. and Jerry D. Moore. 1983. Evaluation of Cultural Resources, Isabella Lake, California. Report prepared for U.S. Army Corps of Engineers, Sacramento District.

McGuire, Kelly R. and Alan P. Garfinkel. 1980. Archaeological Investigations in the Southern Sierra Nevada: The Bear Mountain Segment of the Pacific Crest National Scenic Trail. Cultural Resources Publications: Archaeology.

Meighan, Clement W., Brian Dillon and Douglas V. Armstrong. 1984. Isabella Lake Intensive Cultural Resources Survey. Draft report prepared for the U.S. Army Corps of Engineers. Institute of Archeology, UCLA.

Montizambert, Eric. 1978. Cultural Resources Evaluation: Bear Mountain Segment, Pacific Crest National Scenic Trail. Unpublished report on file with the U.S.D.I. Bureau of Land Management, Bakersfield.

----------. 1982. Preliminary South Sierra Foothills Class II Cultural Resources Inventory Results. Unpublished report on file with the U.S.D.I Bureau of Land Management, Bakersfield.

Salzman, Sally. 1977. The valley of the South Fork of the Kern River: Cultural Resource Management Proposals for the Long Canyon Village Site. U.S.D.I. Bureau of Land Management, Bakersfield.

Schiffman, Robert A. 1976. Archaeological Reconnaissance of the Lake Isabella Reservoir and Adjacent Lands. Report prepared for the U.S. Army Corps of Engineers.

Smith, Richard S., Jr. 1983. Evaluation of Pinyon Pine Mortality at Chimney Peak Area, Bureau of Land Management. U.S.D.A. Forest Pest Management, Pacific Southwest Region. Report No. 83-25. 4 pp.

TCR-ACRS (Theodoratus Cultural Research, Inc. and Archeological Consulting and Research Services, Inc.). 1984. Cultural Resources. Overview of the Southern Sierra Nevada. U.S.D.A. Forest Service, Fresno.

Troxel, B.W. and Morton, P.K. 1962. Mines and mineral resources of Kern County, California. California Division of Mines and Geology County Report 1.

Vaughn, Daniel, 1983. Soil Inventory of the South Sierra Foothills area. Unpublished report on file with the USDI Bureau of Land Management, Bakersfield.

Voegelin, Erminie. 1938. Tubatulabal Ethnography. University of California Anthropological Records 2:1:1-84. Berkeley.

Zigmond, Maurice. 1980. Kaiwalisu Mythology. Ballena Press Anthropological Papers, No. 18. Socorro.

APPENDIX K-A

List of Participants

A. Walker Pass Coordinated Planning Group listed by Interest Group
Revised May 21, 1986

Kern and Tulare County Property Owners

Barbara and Larry Auld
Bob and Genny Charlon
Pete Dietrichson
Vernon Fava
E. Dall Hughs
Hara Lou Ratay
Stanley Wagner
Larry Zabel
Tom Blose
Gretta and Charles Cook
Edward Duff
Russ Fielder
Paul and Chris Meyers
Sam and Joyce Taggart
Beverly Wiggley

Wildlife

Carl Allen (Kern River Wildlife Sanctuary)
Dave Consoli (California Department of Fish and Game)
Bruce Garlanger
Iris Gimbrett (Kern Valley Wildlife Association)
Rod Goss (California Department of Fish and Game)
David Heffner (Kern Valley Wildlife Association)
Charlene Little (Kern Valley Wildlife Association)
Barbara Pratt (Kern River Wildlife Sanctuary)
Tim Witt (Kern County Wildlife Resources Commission)

Recreation

John Aichele (CAL4WD)
The Jenkins
Ardis Walker
Robert Gates
John Ridenour (KVLI Radio)

Cultural Resources

Olga Hammer (Kern River Wildlife Sanctuary)
Bob Powers
Robert Schiffman
Ron Wermuth (Native American)

Environmental Concerns

Diane Mitchell (California Native Plant Society)
Harold Tinkle (Sierra Club)

APPENDIX K-A (continued)

Range

Lou Boll
David Edgar
Glenn Harris (Bureau of Land Management, Ridgecrest)
Bud Mallory
Wayne Nelson (U.S. Forest Service)
Jim Neukirchner
Ralph Phillips (Cooperative Extension)
Norman Sprague
Tip Tipton
Lois Vig

Mining

William Inskeep Earl Kriens
John Nicoll

Watershed

Dale Creighton (Kern River Conservation District)
Scott Frazier (Soil Conservation Service)
Jeff Hansen (Soil Conservation service)
Larry Mills
Lindell Yoshimura (California Department of Forestry)

Tulare County

Mary Beatie (Tulare County Planning Department)

Kern County

Mildred Kissee (Supervisor Ashburn's Office)

Bakersfield District Advisory Council

Ron Brummett (Kern Council of Governments)

Bureau of Land Management

Glenn Carpenter

Unassigned at Present

Patricia Scott Marjorie Torrence

APPENDIX K-A (continued)

B. Steering Committee

Mary Beatie, Tulare County
Lou Boll, Range
Ron Brummett, Bakersfield District Advisory Council
Glenn Carpenter, Bureau of Land Management
Dale Creighton, Watershed
Robert Gates, Recreation
Mark Gauthier, Kern County
Mildred Kissee, Mining
Robert Schiffman, Cultural Resources
Harold Tinkle, Environmental Concerns
Beverly Wigley, Tulare County Property Owners
Tim Witt, Wildlife
Larry Zabel, Kern County Property Owners

C. Technical Review Team Members

Long Valley Technical Review Team
Jon Aichele, Recreation
David Consoli, Wildlife
Scott Frazer, Watershed
Jim Neukirchner, Range, Smith Ranch
Dr. Norman Sprague, Range, Sprague Ranch
Ken Volpe, Bureau of Land Management

Kennedy Meadows Technical Review Team
David Consoli, Wildlife (unable to attend)
Pete Dietrichson, Tulare County Property Owners
Russell Fielder, Recreation
Bill Horst, Tulare County (unable to attend)
Larry Mills, Watershed
Jim Neukirchner, Range
Bob Powers, Cultural Resources
Daniel Vaughn, Bureau of Land Management

Canebrake-Walker Pass Technical Review Team
Jack Connel, Recreation
Scott Frazer, Watershed
Bruce Garlinger, Wildlife
Tip Tipton, Range
Ken Volpe, Bureau of Land Management
Stan Wagner, Kern County Property Owners
Ron Wermuth, Cultural Resources

APPENDIX K-A (Continued)

Chimney Peak Technical Review Team
Pete Dietrichson, Tulare County Property Owners (unable to attend)
Ruby Jenkins, Recreation
Amy Kuritsubo, Bureau of Land Management
Diane Mitchell, Environmental Concerns (unable to attend)
Jim Neukirchner, Range
John Nicoll, Mining
Bob Powers, Cultural Resources
Warren Starns, Wildlife
Dan Seamont, Watershed

D. Canebrake Walker Pass Technical Review Team Subcommittee

Lou Boll
Ron Brummet
Bob Gates
Ken Volpe
Larry Zabel

E. Bureau of Land Management Staff

Glenn Carpenter, Area Manager
Duane Christian, Archaeologist
Maureen Horne, Geologist
Amy Kuritsubo, Wildlife Management Biologist
Russ Lewis, Supervisory Ecologist
Dana McGowan, Archaeologist
Mark Struble, Recreation Planner
Daniel Vaughn, Realty Specialist
Ken Volpe, Supervisory Natural Resource Specialist

APPENDIX L - CULTURAL RESOURCE MANAGEMENT

Appendix L-1 Cultural Resource Management Policy

Appendix L-2 Cultural Resource Use Categories

Appendix L-1 Cultural Resource Management Policy

Purpose and Background

The policy in this summary document comes from the BLM's Cultural Resource Management Manual (BLM, 1988). It was developed with the intent of guiding the BLM's management of cultural resources in a manner that is equally responsive to the cultural resource laws and regulations, and to the multiple use principles of the Federal Land Policy and Management Act.

As used here, "cultural resource" includes two contrasting kinds of resources: (1) "Cultural properties" are definite physical locations and associated material remains, such as archaeological and historical sites, that have been found to be capable of contributing important scientific, historic, or management information, or that possess identified social, cultural, educational, or public importance; (2) "traditional lifeway values" are a social group's long-standing, shared beliefs and practices that relate land or land features with the group's sense of identity.

The BLM is steward for the Federal government's largest, most varied, and scientifically most important body of cultural resources. In various laws Congress has addressed the vulnerability of cultural resources, the rate of their damage or loss, and their continuing importance to the common legacy of the American people. In addition, the BLM recognizes that cultural resource information, which chronicles thousands of years of human adaptations to gradually changing land and resource conditions, provides a dynamic sense of time that can and should be brought to bear in today's land use decisions.

Policy Statements

Cultural resources are finite, fragile, and irreplaceable resources with a wide range of public, scientific, and conservation uses, representing a vital and integral part of our Nation's heritage. To meet its specific legislated responsibilities and to fulfill its general stewardship role, the BLM will:

-Recognize that cultural resource management represents a distinct BLM program that is a full participant in balanced multiple use management, and give cultural resources a level of consideration equivalent to other public land resources in all land use planning and management decisions;

-Apply cultural resource information relating to prehistoric and historic land uses whenever a long-term time perspective and an understanding of past successes and failures can contribute to land use decisions;

-Ensure that BLM's land use decisions will not have inadvertent adverse effects on cultural properties that qualify for the National Register of Historic Places;

-Determine as early in planning as feasible whether proposed decisions would affect qualified properties, and take effects into account by consulting with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation according to regulations implementing Section 106 of the National Historic Preservation Act;

-Recognize that the professional cultural resource staff must perform a major service role for other BLM programs, providing timely, effective technical aid in completing the Section 106 consultation process, and that it is the responsible manager's obligation to satisfy the legal requirement;

-Foster rapport with SHPO and Advisory Council staffs, to promote a positive historic preservation partnership while recognizing BLM's primary role in the consultation process and sole responsibility for decisions;

-Practice sound judgment and prudence in planning, inventory, evaluation, and protection decisions, doing or requiring only what is proportionate to known or predicted cultural resource importance, commensurate with the scale of proposed land uses, and balanced in the public benefits that would be obtained;

-Accommodate public and scientific uses of cultural resources, recognizing that appropriate use is the end goal for their management, and interpret suitable cultural resources to the general public in cooperation with the recreation management program;

-Pursue vigorously the protection of cultural properties from theft and other illegal uses, exercising the sanctions of the Archaeological Resources Protection Act and other laws through the law enforcement staff;

-Encourage the involvement and cooperation of other agencies, State and local governments, Indian tribes, organizations, and individuals in the identification, protection, interpretation, and management of cultural resources, including execution of cooperative management agreements;

-Ensure that cultural resource data that are capable of contributing important public, scientific, historic, or management information are maintained, synthesized, and interpreted on a regular basis, for use in future land use planning and for dissemination to the public;

-Solicit necessary information about traditional lifeway values from concerned segments of the public, including but not limited to Indian tribes, and consider potential impacts on such values through the public participation procedures for land use planning and environmental review;

-Maintain adequate professional cultural resource staffing in the field locations where it is needed, and strengthen and improve the professional, technical, interdisciplinary, and managerial skills of the staff to enhance individual performance and increase job satisfaction.

Appendix L-2 Cultural Resource Use Categories

All public land cultural resources known to occur within a BLM administrative unit will eventually be classified according to the following categories. Classifications may change as new data become available.

Scientific Use. This category applies to any cultural property determined to be suitable for consideration as the subject of scientific or historical study utilizing currently available research techniques, including study that would result in its physical alteration. Inclusion in this category signifies that the property need not be conserved in the face of an appropriate research or data recovery (mitigation) proposal.

Conservation for Future Use. This category is reserved for any unusual cultural resource which, because of scarcity, a research potential that surpasses the current state of the art, singular historic importance, cultural importance, or architectural interest, or comparable reasons, if not currently appropriate for consideration as the subject of scientific or historical study that would result in its physical alteration. A cultural property or location included in this category is considered worthy of segregation from all other land or resource uses, including cultural resource uses, that would threaten the maintenance of its present condition or setting, as pertinent, and it will remain in this use category until specified provisions are met in the future.

Management Use. This category may be applied to any cultural property considered most useful for controlled experimental study that would result in its physical alteration, to be conducted by the BLM or other entities concerned with the management of cultural properties. Expenditure of cultural properties or data may be justified for purposes of obtaining specific information that would ultimately aid in the management of other cultural properties. Experimental study may be aimed toward a better understanding of kinds and rates of natural or human caused deterioration, effectiveness of protection measures, and similar lines of inquiry.

Sociocultural Use. This category is to be applied to any cultural resource that is perceived by a specified social and/or cultural group of having attributes that contribute to maintaining the heritage or existence of that group. This use category signifies that the cultural resource is to be managed in a way that takes those attributes into account, as applicable.

Public Use. This category may be applied to any cultural property found to be appropriate for consideration as an interpretive exhibit in place, a subject of supervised participation in scientific or historical study, or related educational and recreational uses by members of the general public.

Discharged Use. Assignment to this category means either that a cultural resource that was previously qualified for assignment to any of the categories defined above no longer possesses the qualifying characteristics for that use or for assignment to an alternative use; or that a cultural property's scientific use potential was so slight that it was exhausted at the time the property was recorded, and no alternative use is deemed appropriate. Where a cultural property is involved, allocation to discharged use also means that records pertaining to the property represent its only remaining importance, and that its location no longer presents a management constraint for competing land uses. Considerations include the following:

1. Applies to Cultural Property or Traditional Lifeway Value. Assigned use of either a cultural property or a traditional lifeway value may be discharged when appropriate, but in the case of a traditional lifeway value assigned to sociocultural use, it would be uncommon for ascribed importance (for example, sacredness) to be lost.

2. Applies When Qualifying Characteristics Absent. A cultural property such as a shallow rockshelter could either be fully excavated, thereby realizing its scientific use potential, or completely looted, destroying its potential. Knowledge that it once contained archaeological deposits is still important, and it would continue to be represented in inventory records.

3. Applies to Immediate Realization of Potential. A cultural property with limited scientific use potential and no other use potential, such as a small surface lithic scatter, could be sufficiently recorded on discovery so that no further field study would be needed.

INDEX

Access 8, 9, 12, 13, 20, 21, 110, 178, 179, 513-516, 803, 811, 813, 814
Air resources 52, 54, 239-241, 299, 331, 355, 384, 408, 413
Alkali Mariposa lily 22, 23, 87, 190, 200, 214, 271, 317, 318, 344, 369, 395, 472, 503, 709, 713, 716
Alternatives 33, 39, 41, 219, 407
  Alternative 1 6, 114, 147, 183, 239
  Alternative 2 6, 117, 152, 187, 299
  Alternative 3 7, 125, 159, 195
  Alternative 4 7, 132, 166, 204
  Alternative 5 7, 136, 171, 210
Annual saltbush 22, 23, 270, 271, 275, 317, 344, 369, 395, 453, 726
Archaeology 44, 47, 54-57, 79, 81, 99, 414, 417, 424, 434, 435, 448-450, 461, 462, 469, 471, 610, 613, 627, 634, 667, 668, 676, 726, 745, 749, 760-763, 793, 805-807, 810, 817, 818, 824, 825, 827
Area of Critical Environmental Concern 6, 107, 109, 112-114, 116, 124, 131, 137, 144, 146, 151, 158, 164, 169, 183, 186, 193, 202, 208, 266, 284, 316, 323, 443, 544, 586, 676, 763
  Alkali Sink ACEC 152, 157, 159, 166, 174, 489, 676, 678
  Bittercreek ACEC 153, 490
  Blue Ridge ACEC 184, 186, 187, 194, 196, 203, 204, 208, 210, 217, 295, 466, 485, 491, 676, 678
  Buena Vista Valley ACEC 153, 301
  California Rocks and Islands ACEC 64, 107, 113, 114, 118, 124, 125, 130, 132, 136, 138, 143, 444, 480
  Carrizo Plain ACEC 152, 159, 163, 166, 172, 307, 315, 337, 341, 360, 364, 389, 392, 393, 457, 461, 465, 466, 490, 676, 678
  Case Mountain ACEC 187, 196, 204, 209, 210, 218, 320, 346, 371, 467, 492
  Chico Martinez ACEC 145, 292, 307, 313, 341, 364, 389, 392, 459, 464, 490, 678
  Chimney Peak ACEC 492
  Cypress Mountain ACEC 119, 126, 133, 139, 306, 444, 445, 676, 677
  Deer Spring ACEC 190, 192, 469, 492, 677
  Elkhorn Plain ACEC 146, 152, 166, 172, 288, 290, 460, 483, 491
  Erskine Creek ACEC 190, 192, 211, 306, 388, 470, 492, 677
  Frog Pond Mountain ACEC 119, 126, 133, 139, 446, 677
  Goose Lake ACEC 59, 149, 152, 157, 159, 166, 174, 263, 318, 344, 369, 395, 461, 462, 483, 491, 677, 678
  Irish Hills ACEC 119, 123, 127, 447, 488, 677
  Kernville Hot Springs ACEC 233, 306
  Kettleman Hills ACEC 153, 174, 315, 398, 462, 491, 678
  Keyesville ACEC 64, 188, 190, 233, 306, 474, 475, 493, 677
  Lokern ACEC 152, 159, 166, 172, 315, 491, 677, 678
  North Fork Kaweah ACEC 677
  Plute Cypress ACEC 12, 64, 180, 184, 187, 192, 194, 196, 204, 210, 318, 342, 345, 365, 370, 392, 396, 486, 494, 677
  Point Sal ACEC 107, 112, 114, 118, 125, 132, 136, 138, 449, 450, 480, 488, 677
  Reef Ridge ACEC 145, 464
  Rusty Peak ACEC 119, 306, 450, 451, 489, 677
  Salinas River ACEC 118, 125, 132, 138, 489, 677
  Sand Canyon ACEC 190, 196, 206, 213, 307, 493, 678
  Soda Lake ACEC 86, 148, 152, 166, 172, 252, 485, 491
  Tierra Redonda ACEC 119, 126, 133, 139, 489, 677
  Walker Pass ACEC 187, 196, 204, 210, 307, 327, 337, 351, 356, 379, 385, 389, 401, 494, 678
Biodiversity 2, 3, 48, 90, 91, 93, 118, 119, 125-127, 132, 133, 138, 139, 141, 144, 152, 159, 163, 174, 179, 251, 415, 452, 510, 514, 716
Cadastral survey 110, 415, 488-491, 493, 494, 744, 776
Caliente Mountain 42, 47, 59, 79, 86, 87, 91, 92, 95, 146, 153, 162, 163, 164, 169, 172, 176, 295, 297, 318, 456, 458, 459, 490, 517, 545, 686, 761
California Department of Fish and Game 3, 62, 79, 82, 95, 96, 193, 199, 209, 217, 223, 231, 264, 283, 285, 288, 290, 291, 294, 322, 324, 325-327, 347-351, 374-378, 380, 398-401, 413, 417, 430, 434, 435, 437-439, 445-447, 461, 463, 466, 469, 470, 476, 477, 489, 490, 509, 510, 619, 620, 742, 743, 745-747, 750, 753, 754, 758, 766-768, 771-773, 779, 783, 791, 792, 799, 801, 802, 808, 819
Carrizo Plain Natural Area 3, 24, 26, 38, 42, 59, 62, 86, 145, 146, 149, 151, 178, 221, 223, 224, 243, 248, 262-264, 267, 268, 270, 280, 283-286, 288-295, 297, 298, 300, 314, 315, 321, 324-330, 333, 342, 352, 354, 356, 365-367, 373, 375, 376, 377-382, 385, 402, 403, 413, 438, 441, 554, 558, 562, 565, 567, 570, 572, 575, 726, 741-743, 745-747, 750, 751, 760, 762, 764, 765, 771, 772, 776, 779, 782, 783
Christmas tree cutting 80, 82, 184, 191, 199, 206, 211, 213, 237, 796
Chukar 91, 95, 145, 163, 295, 329, 352, 381, 759
Coal 65, 71, 242, 422, 661

Coordination 40, 61, 63, 103, 136, 225, 277, 407, 414, 456, 747, 748, 759, 762, 764, 767, 769, 772, 788, 791
Counties 1-3, 34, 36, 40, 45, 51, 53, 54, 58-60, 67, 71-73, 83, 84, 89, 101, 107, 110, 114, 118, 125, 132, 138, 145, 223, 224, 236, 237, 243, 444, 471, 478, 480, 649-651, 708
Kern 2, 34, 53, 55, 59, 60, 65, 68-72, 77, 83, 84, 87, 88, 90, 95, 146, 223, 226, 240, 311, 408, 410, 433, 434, 437, 452, 453-455, 461, 462, 472, 473, 475, 477, 504, 646, 649-651, 661, 704-706, 708, 710, 712, 715, 728, 772, 789, 791, 797, 818-821
Kings 67, 223, 408, 409, 435, 459, 462, 464
San Luis Obispo 2, 34, 52, 59, 67, 68, 71-73, 76, 79, 86, 110, 223, 408, 409, 434, 435, 438, 445, 447-452, 454, 456, 459, 460, 464, 465, 506, 649, 655, 722, 725, 784, 788, 772
Santa Barbara 52, 68, 71, 72, 83, 110, 408, 448
Tulare 65, 95, 223, 237, 408-410, 435, 466, 467, 469, 475, 477, 711, 714, 717, 718, 721, 723, 727, 789, 791, 797, 819, 820-822
Ventura 52, 68, 71, 72, 89, 110, 408, 409, 651
Cultural:
Lifeway values 54, 55, 148, 152, 159, 166, 172, 190, 196, 200, 205, 206, 211, 213, 214, 430, 492, 824, 825
Property 54, 55, 417, 707, 709, 710, 713, 729, 783, 784, 824-827
Resources 1, 3, 40, 44, 54-57, 61, 79, 99, 103-106, 114, 115, 118, 123, 125, 129, 132, 135, 139, 138, 142, 146, 148, 149, 150, 152, 153, 157, 160, 162, 164, 166, 168, 169, 174-176, 179, 180, 185, 187, 188, 187, 190-193, 195, 197, 196, 199-202, 204, 206, 207, 210, 211, 210, 213-218, 243, 307, 337, 389, 411, 416, 417, 424, 430, 438, 441, 443, 448, 456, 459, 468, 471, 472, 474, 488-493, 514, 515, 613, 627, 632, 667, 668, 709, 736, 744, 746, 748, 749, 760-762, 765, 766, 768, 773, 776, 781, 783, 784, 789, 793, 797, 806, 809, 817-819, 821-826
Deer 56, 77, 80, 82, 91, 93-97, 145, 163, 188, 190, 192, 199, 203, 214, 218, 271, 274, 279, 294, 295, 323, 329, 330, 352, 381, 402, 415, 417, 419, 427, 434, 438, 442, 450, 462, 468-470, 478, 485, 492, 546, 677, 709, 711, 714, 717, 719, 721, 727, 761, 765, 766, 789, 791-793, 799, 802-804, 810, 815, 817
Drought 24, 82, 108, 273, 274, 276, 278, 280, 319, 321, 327, 347, 372, 397, 418, 476, 581, 694, 720, 725
Federally listed species 24, 25, 83, 91, 280, 314, 321, 343, 347, 366, 372, 394, 397, 404, 618
Bakersfield cactus 22, 23, 83, 84, 87, 246, 247, 252, 269, 302, 303, 316, 317, 335, 344, 368, 387, 395, 503
Blunt-nosed leopard lizard 24, 25, 91, 92, 94, 96, 148, 280-293, 295, 321, 322, 324-329, 347-349, 352, 372-375, 377, 379, 397, 398, 400, 413, 434, 438, 453-456, 460-465, 496, 509, 515, 567, 568, 570-573, 619, 726, 745, 755, 778, 779
California condor 24, 25, 36, 60, 81, 91-96, 121, 122, 129, 135, 142, 246, 249, 283, 298, 322, 348, 374, 398, 438, 450, 453, 454, 456, 461, 464, 466, 496, 675, 745, 757-759
California jewelflower 22, 23, 83, 84, 86, 246, 247, 263-265, 267-269, 302, 303, 314-316, 335, 343, 344, 366, 368, 387, 394, 395, 456, 503, 548, 567, 568, 570, 571, 570, 572, 745, 753, 770, 779
Giant kangaroo rat 24, 25, 91, 92, 94, 148, 149, 163, 176, 246, 247, 284-286, 290, 302, 303, 324, 335, 348, 375, 387, 398, 399, 438, 439, 453-457, 460, 463-465, 496, 726, 745, 756, 770, 778, 779
Hoover's woolly star 83, 246, 247, 302, 303, 335, 387, 567, 568, 570, 571, 570, 572
Kern mallow 23, 83, 84, 87, 246, 247, 268, 302, 303, 315, 335, 343, 368, 387, 394, 463, 504
Kern primrose sphinx moth 24, 25, 91, 252, 288, 289, 325, 350, 377, 400, 438, 496, 567, 568, 570-573
San Joaquin antelope squirrel 26, 27, 290, 291, 326, 350, 378, 400, 401, 435, 437, 438, 453, 455, 456, 460, 462, 464, 465, 497, 726, 745, 756, 757
San Joaquin kit fox 24, 25, 91, 92, 94, 96, 148, 287, 288, 325, 349, 376, 399, 400, 413, 433, 436, 453-456, 460-462, 464, 465, 497, 509, 567, 568, 570-573, 619, 669, 725, 745, 754, 755, 778, 779
San Joaquin woolly threads 22, 23, 83, 84, 86, 87, 247, 267, 303, 315, 335, 343, 367, 387, 394, 437, 462, 567, 568, 570, 571, 570, 572
Tipton kangaroo rat 24, 25, 91, 94, 286, 287, 324, 325, 348, 349, 376, 399, 439, 453, 461, 463, 497
Fire 24, 39, 45, 58, 82, 91, 106, 112, 146, 180, 203, 208, 209, 217, 218, 242, 249, 269, 274, 276, 278, 293, 304, 306, 320, 321, 326, 327, 336, 346, 358, 372, 386, 396, 397, 405, 406, 412, 423, 426, 431, 436, 447, 467, 468, 475-477, 492, 494, 510, 607, 613, 696, 708, 709, 718, 737, 744, 748, 749, 775, 776, 778, 790, 796, 798, 803, 805, 806, 809, 811, 812
Forestry 44, 57, 84, 95, 180-182, 184, 191, 199, 206, 213, 242, 247, 248, 406, 409, 412, 436, 510, 748, 775, 811, 820
Forked fiddleneck 22, 23, 272, 318, 345, 359, 395, 456, 460, 464, 504, 753
Fossil 45, 73, 76, 77, 108, 153, 160, 167, 172, 307, 416, 424, 425, 429, 431, 452, 462, 464, 471, 472, 489, 676
Geothermal resources 18, 19, 65, 115, 123, 128, 130, 134, 138, 141, 143, 148, 150, 153, 157, 160, 162-164, 168, 170, 172, 174, 175, 177, 188, 193, 197, 200, 202, 206, 208, 211, 213, 215, 216, 233, 253, 306, 307, 338, 360, 389, 413, 417, 419, 421, 422, 435, 447, 451, 455, 472, 474, 477, 585, 586, 588-591, 665, 674, 735
Giant sequoia forest 22, 23, 57, 58, 60, 64, 66, 79, 80, 82, 87, 107, 180-182, 188, 187, 197, 196, 205, 204, 211, 210, 219, 236, 237, 241, 252, 263, 272, 276, 320, 346, 371, 395, 407, 408, 435, 467, 470, 473, 475-477, 492, 506, 514, 517, 704, 706, 707, 708, 710-715, 717-721, 723, 724, 727-730
Hazardous materials 24, 45, 58, 105, 106, 110, 162, 168, 175, 231, 241, 276, 279, 280, 286, 299, 320, 326, 327, 332, 340, 346, 355, 372, 384, 396, 397, 490, 607, 614, 619, 629, 734, 735, 764, 765
Herbicides 241, 277, 320, 327, 346, 372, 397, 740

Historic Resources 112, 474, 709, 712, 716, 718, 720, 721, 723, 724, 727, 730, 760, 762
Hollisterla 22, 87, 152, 159, 174, 272, 318, 345, 369, 395, 454, 456, 460, 464, 504, 515, 754
Indian reservations 56, 60, 64, 95, 409, 689
Jared's pepper-grass 22, 86, 272, 318, 345, 369, 396, 504, 754
Joshua trees 22, 23, 80, 83, 87, 101, 107, 188, 190, 197, 198, 200, 205, 211, 210, 214, 252, 275, 276, 291, 307, 320, 327, 337, 338, 346, 351, 371, 379, 389, 396, 401, 498, 507, 617, 707, 709, 792, 808
Kelso creek monkeyflower 22, 23, 87, 190, 200, 214, 271, 318, 344, 369, 395, 472, 504
Land tenure adjustment 8, 14, 31, 43, 45, 101, 106, 110, 117, 124, 131, 137, 144, 151, 158, 165, 170, 178, 186, 194, 203, 209, 216, 222, 224, 238, 243, 244, 255, 300, 309, 332, 333, 338-340, 356, 384, 385, 407, 411, 412, 421
Land acquisitions 2-4, 42, 47, 107, 118, 119, 125, 128, 138, 139, 147, 149, 152, 153, 159, 160, 166, 167, 171, 174, 187, 191, 195, 197, 206, 210, 213, 224, 256, 309, 339, 345, 361, 390, 395, 513, 518, 765, 771
Land exchanges 42, 59-61, 110, 144, 222, 339, 361, 426, 772
Land use authorizations 8, 14, 38, 43, 59, 60, 100, 101, 103, 106, 107, 119, 126, 133, 139, 153, 160, 163, 167, 172, 184, 188, 197, 205, 211, 224, 225, 238, 245, 249, 301, 304, 333, 335, 357, 358, 385, 388, 405, 412, 445, 447, 449, 451, 452, 454, 456, 467, 469, 472, 474, 728, 734
Communication sites 8, 9, 46, 60, 116, 122, 123, 129, 133, 135, 136, 142, 150, 156, 157, 164, 169, 176, 177, 185, 192, 193, 201, 202, 207, 216, 224, 246, 301, 333, 357, 386, 473, 513, 517, 709, 726, 813
Recreation and Public Purposes Act 9, 100, 101, 113, 119, 128, 134, 140, 145, 153, 161, 163, 168, 174, 181, 191, 197, 206, 213, 222, 223, 386, 413, 427, 447, 585, 586, 736
Right-of-way avoidance areas 108, 142, 301, 333, 357, 385, 427
Right-of-way corridors 122, 129, 135, 142, 156, 164, 169, 176, 192, 201, 207, 216, 417, 427
Right-of-way exclusion area 142, 301, 333, 357, 386, 427
Rights-of-way 8, 9, 46, 58-60, 102, 105, 115, 119, 128, 134, 140, 150, 153, 160, 168, 174, 185, 191, 197, 206, 213, 224, 225, 245, 249, 251, 256, 301, 304, 315, 334, 335, 357, 358, 361, 386, 388, 413, 417, 427, 430, 447, 456, 460, 462, 463, 466, 468, 475, 479, 517, 610, 683, 697, 705, 706, 708, 709, 711-713, 717, 720, 726, 729, 730, 736, 771, 805, 809, 813
Wind energy 8, 9, 47, 60, 116, 123, 129, 136, 142, 150, 157, 164, 169, 177, 185, 192, 202, 207, 216, 225, 472, 737
LeConte's thrasher 24, 25, 293, 294, 328, 352, 380, 402
Livestock Grazing 10, 16, 32, 41-43, 47, 48, 61, 62, 112, 122, 126, 135, 141, 149, 156, 163, 168, 175, 184, 191, 201, 206, 215, 225, 226, 227, 246, 302, 334, 357, 386, 550, 567, 577, 580-583, 622, 736, 768, 795, 815
Locatable minerals 16, 18, 19, 47, 116, 124, 130, 136, 143, 151, 157, 165, 170, 177, 186, 193, 202, 208, 217, 253, 266, 307, 315, 337, 338, 360, 389, 405, 422, 449, 469, 473, 477, 584-586, 597-601, 774, 775
Management Areas
Coast Management Area 1, 2, 36, 45, 51, 55, 58, 61, 65, 72, 73, 76, 78, 82-85, 88, 89, 92, 93, 112, 116, 122, 123, 130, 143, 144, 225, 226, 228, 229, 236, 250, 442, 444, 490, 488, 514, 516, 517, 519, 544, 551, 555, 559, 563
South Sierra Management Area 3, 4, 16, 38, 54, 57, 60, 63, 67, 76, 77, 80, 81, 83, 87, 90, 95, 180, 181, 219, 225, 226, 237, 247-249, 262, 278, 306, 357, 442, 466, 485, 491, 514, 516, 517, 534, 543, 546, 547, 551, 555, 558, 559, 563
Valley Management Area 2, 3, 16, 17, 36, 38, 41, 43, 53, 54, 56, 59, 61, 62, 74, 76, 78, 79, 82, 83, 85, 89, 93, 145, 178, 224-226, 228, 229, 236, 245, 248, 250-252, 266, 272, 302, 305, 306, 311, 315, 336, 337, 343, 357, 359, 364, 367, 388, 391, 394, 404, 442, 452, 481, 489, 511, 515-517, 526, 543, 545, 552, 554, 556, 558, 560, 561, 564
Mastodon 76, 482
Mineral materials 10, 11, 47, 63, 65, 113, 116, 119, 123, 126, 130, 133, 136, 139, 143, 151, 153, 157, 160, 162, 165, 167, 168, 170, 172, 175, 177, 182, 185, 188, 193, 197, 200, 202, 208, 211, 214-216, 228, 231, 240, 252, 257, 266, 299, 307, 315, 332, 337, 355, 369, 416, 418, 422, 423, 479, 584, 585, 602-606
Mining 64-66, 104, 108, 180, 191, 197, 209, 217, 226, 230-232, 252, 306, 585, 606, 623, 697, 774, 796, 813
Mojave ground squirrel 26, 27, 291, 327, 350, 351, 379, 401
Mountain plover 93, 292, 328, 351, 380, 401, 402, 436, 456, 460, 463, 465, 497, 501, 759
Mouse buckwheat 22, 23, 272, 318, 345, 370, 396, 476, 505, 712, 718, 727
Mulch 10, 11, 41, 42, 61-63, 108, 114, 115, 122, 128, 129, 135, 141, 142, 149, 150, 156, 163, 164, 168, 169, 175, 176, 185, 192, 201, 206, 207, 215, 226, 227, 246, 249, 250, 264, 267-277, 280, 281, 285, 289, 291-295, 302, 305, 314, 317-322, 324-326, 328, 329, 334, 336, 345, 346, 351-353, 357, 358, 366-382, 386, 396, 402-404, 423, 433, 435, 551-565, 567-576, 579-581, 583, 617, 736, 769-771, 780, 798, 807, 815
National Cooperative Land and Wildlife Management Area 26, 27, 79, 93, 95, 97, 101, 102, 107, 145, 147, 156, 164, 176, 180, 182, 192, 201, 207, 215, 248, 262, 295, 303, 313, 315, 317, 329, 333, 334, 341, 343, 353, 356, 358, 364, 367, 382, 385, 386, 392, 394, 402, 403, 413, 456, 458, 459, 461, 468-470, 476-478, 490, 519, 543, 704, 706, 710, 712, 714, 715, 721, 728, 729, 792, 799
National Park Service 48, 64, 68, 104, 182, 238, 295, 408, 411, 412, 435, 510, 718, 720, 728
Neotropical migrants 26, 27, 298, 330, 331, 354, 383, 403, 404, 424
Nine Mile Canyon phacelia 22, 87, 273, 318, 345, 370, 396, 468, 505

Oak woodland 22, 23, 82, 83, 85, 87, 93, 101, 119, 126, 128, 133, 139, 141, 252, 274, 275, 295, 319, 345, 371, 396, 450, 452, 477, 498, 514
Oil and Gas 10, 18, 28, 40, 47, 66, 100, 103, 104, 108, 112, 116, 117, 123, 124, 128, 132, 136, 137, 141, 145, 146, 151, 156, 163, 164, 168, 169, 175, 181, 184, 186, 193, 200, 206, 214, 233, 234, 254, 307, 338, 360, 390, 586, 608, 624, 634, 641, 673, 679, 690, 693, 734, 737
Application for Permit to Drill 416, 430, 674, 682, 683, 688, 774
Conditions of Approval 104, 258, 309, 310, 362, 416, 608, 610, 627, 630, 665, 671, 676, 677, 688, 689, 737-740
Geophysical exploration 258, 607, 627, 679
Leasing 7, 23, 34, 40, 41, 104, 108, 112-114, 118, 120, 125, 132, 138, 144, 147, 152, 159, 166, 171, 221, 238, 239, 268, 269, 271, 275, 287, 293, 315, 317, 318, 322, 324, 325, 328, 338, 344, 345, 347-349, 352, 366, 368, 369, 373, 376, 377, 381, 395, 397-400, 402, 412, 423, 634, 681, 683, 687, 689, 690
Management classes 16, 28, 29, 45, 253, 578, 665, 698, 796, 797
Midway-Sunset 258, 260, 265, 308, 311, 364, 455, 650
Sundry notices 70, 416, 430, 456, 607, 626, 628, 631, 737-740
Oval-leaved snapdragon 22, 23, 87, 152, 159, 174, 271, 272, 318, 345, 369, 395, 454, 456, 459, 505, 515, 753
Owen's Peak lomatium 22, 272, 318, 345, 370, 396, 505
Painted Rock 12, 13, 56, 62, 79, 158, 165, 170, 178, 236, 271, 272, 457, 458, 490, 552, 558, 560, 564, 748-750, 752, 760-763, 765, 766, 768, 777, 780
Paleontology 2, 4, 39, 45, 76, 77, 101, 103, 106, 119, 126, 133, 139, 149, 153, 156, 158, 160, 163, 166, 174, 178, 179, 190, 196, 206, 213, 251, 411, 425, 439, 452, 471, 491, 493, 514, 607, 612, 676, 733, 763
Pesticides 45, 108, 241, 277, 279, 286, 292, 320, 438, 607, 615, 617, 755
Piute Mountains jewelflower 22, 87, 190, 200, 213, 272, 273, 318, 345, 370, 396, 470, 713
Quail 80, 91, 95, 145, 163, 295, 329, 352, 381, 410, 450, 711, 717, 719, 727, 759, 785, 792
Raptors 26, 27, 92, 93, 104, 149, 152, 160, 166, 174, 297, 298, 330, 331, 354, 383, 403, 404, 422, 427, 461, 465, 515, 585, 622, 672, 675, 725, 733, 750, 756, 812
Recreation 12, 20, 26, 27, 43, 47, 76, 100, 108, 116, 123, 130, 136, 142, 145, 151, 157, 165, 170, 176, 180, 186, 192, 201, 207, 215, 235, 261, 312, 341, 364, 392, 405, 631, 695, 765, 794
Backcountry Byways 3, 4, 12, 77, 79, 81, 82, 147, 158, 165, 170, 178, 183, 194, 200, 203, 209, 214, 218, 219, 238, 312, 314, 341, 342, 364, 365, 392, 393, 492
Campgrounds 4, 13, 21, 77, 79-82, 188, 194, 197, 203, 208, 209, 211, 217-219, 235, 237, 251, 364-366, 392-394, 467, 468, 473, 478, 492, 678, 708, 709, 714, 715, 766, 789, 794, 797, 801, 802, 806, 809, 810, 812, 816, 817
Casual use 105, 228, 231, 416, 426
Hunting 20, 47, 55-57, 77-81, 145, 223, 235-237, 262, 280, 313, 314, 341, 342, 364, 365, 392, 393, 418, 445, 447, 451, 452, 454, 455, 458, 459, 461, 466, 468, 469, 471, 473, 474, 478, 707, 708, 714, 721, 722, 724, 748, 759, 760, 765, 767, 793, 794
Off highway vehicles 2, 33, 51, 110, 262, 265, 341, 384, 392, 464, 765
Pacific Crest National Scenic Trail 60, 77, 80-82, 182, 188, 190, 196, 200, 205, 211, 214, 237, 238, 413, 467, 468, 478, 514, 706, 708, 709, 730, 789, 791, 793, 794, 796, 797, 799, 806, 810, 811, 816-818
Recreational mining 64, 119, 182, 183, 190, 193, 194, 199, 209, 213, 217, 219, 231, 451, 474, 715
Route designations 116, 124, 130, 137, 143, 145, 151, 158, 165, 170, 178, 186, 194, 203, 208, 217, 695, 696, 752, 754, 755, 756, 758, 789
Special Recreation Management Areas 9, 78, 79, 81, 82, 109, 129, 142, 164, 177, 186, 194, 202, 203, 208, 209, 216, 217, 218, 237, 238, 333, 386, 413, 428, 518, 697, 715, 794
Wild and Scenic Rivers 8, 9, 18, 48, 49, 77-82, 109, 113, 119, 123, 126, 130, 133, 135, 136, 139, 143, 147, 153, 157, 160, 164, 167, 172, 177, 183, 188, 192, 193, 197, 200-202, 207, 208, 211, 214-216, 218, 238, 251, 253, 262, 278, 301, 307, 313, 315, 317, 320, 327, 333, 337, 338, 342, 343, 357, 380, 385, 387, 372, 385, 389, 393, 394, 397, 413, 431, 432, 458, 465, 467, 475, 478, 489-494, 518, 585, 696, 698-702, 718, 723, 728, 729
Wilderness Areas 1-4, 8, 9, 33, 40, 41, 43-49, 55-58, 61, 64, 67, 68, 71, 72, 74, 75, 77, 78, 80, 82-88, 95, 100, 101, 109, 112-118, 123-125, 129, 130, 132, 136, 138, 142, 143, 148, 149, 152, 157, 159, 164, 166, 169, 174, 177, 184, 187, 192, 196, 202, 204, 207, 210, 216, 222-224, 228, 231, 234, 235, 237, 241-243, 245, 247, 248, 251, 253, 254, 262, 266, 270, 271, 275, 276, 278, 289, 299-302, 304, 312, 321, 332-335, 341, 347, 355-358, 364, 366, 371-373, 384-386, 388, 392, 397, 407, 411, 426, 428, 431, 432, 443-453, 457, 459-462, 464-474, 476, 477, 478, 480, 484, 485, 509-511, 514, 515, 549, 585, 586, 609, 613, 625, 630, 641, 642, 644-646, 648-653, 655, 660, 665, 666, 668, 676, 679, 687, 693, 696-698, 701, 704, 706, 707, 709, 710, 713, 714, 716, 719, 720, 721, 723, 726, 729, 734, 741, 743, 745, 746, 749, 750, 760, 761, 766, 770, 772, 777-779, 787, 789, 792, 793-796, 811, 814, 824, 826
Wilderness Study Areas 6, 8, 9, 45, 47, 48, 57, 58, 64, 66, 77-80, 88, 101, 103, 107, 109, 122, 123, 129, 135, 136, 142, 150, 156-158, 164, 169, 176-178, 181, 182, 185, 186, 190, 192-194, 196, 201-203, 205, 207, 208, 211, 215, 216-218, 237, 241, 243, 245, 253, 254, 262, 300, 301, 304, 307, 313, 315, 317, 320, 327, 332, 333, 337, 338, 342, 343, 356-358, 360, 365, 367, 372, 384-387, 389, 393, 394, 397,

413, 432, 458, 459, 467, 469, 470, 475, 477, 478, 544, 545, 547, 585, 586, 634, 676, 697, 704, 706-708, 711, 712, 714, 717-719, 721, 728, 729, 795, 796
Recurved larkspur 22, 271, 275, 318, 344, 369, 395, 453, 456, 505, 753
Riparian 26, 27, 43, 61, 85, 87-90, 92, 93, 95-97, 101, 107-110, 119, 118, 119, 121, 126, 133, 132, 133, 139, 138, 139, 163, 175, 188, 187, 190, 191, 197, 196, 199-201, 204, 211, 210, 213-215, 218, 219, 223, 247, 252, 262, 277-279, 285, 296, 297, 298, 303, 307, 313, 317, 320, 321, 323, 327, 329, 330, 335, 334, 337, 342, 344-347, 353, 354, 358, 365, 372, 382, 383, 387, 386, 389, 393, 397, 403, 404, 427, 433, 434, 436, 437, 446, 447, 451, 468-470, 473, 474, 476, 478, 479, 488, 489, 492-494, 498, 507, 514, 515, 518, 569, 573, 574, 576, 672, 696, 704, 705, 707, 708, 711, 712-714, 716-719, 721-724, 727-729, 733, 738-740, 789, 790, 792, 798, 799, 802, 808, 815-817
Salable minerals 18, 19, 253, 307, 337, 338, 360, 389, 427, 585, 586
Saltbush 22, 23, 39, 82, 83, 85-87, 146, 156, 163, 175, 192, 201, 215, 246, 247, 268, 270, 271, 273-275, 280, 281, 288, 293, 302, 305, 306, 317, 319, 321, 322, 335, 334, 336, 343-345, 347-352, 366, 369-371, 373, 375-382, 387, 394-396, 405, 427, 434, 453, 456, 461, 463, 465, 503-505, 567, 568, 570-573, 572, 581, 617, 618, 725, 726, 745, 753, 754
Short-nosed Kangaroo rat 24, 25, 291, 292, 327, 351, 379, 380, 401, 455, 456, 460, 463-465, 497, 726, 757, 758, 778
Solid leasable minerals 18, 19, 47, 63, 68, 104, 119, 126, 133, 139, 148, 153, 160, 162, 167, 172, 175, 188, 197, 200, 211, 214, 215, 232, 252, 253, 307, 337, 338, 360, 389, 422, 451, 469, 471, 473, 584-586, 592-596
Stipulations 41, 48, 108, 112, 115, 123, 126, 129, 133, 135, 139, 142, 149, 150, 157, 164, 165, 169, 170, 176, 177, 185, 192, 200, 202, 207, 216, 222, 257, 258, 265, 268, 282, 308-310, 339, 361, 362, 366, 367, 369, 373, 374, 391, 417, 422, 423, 429, 432, 453, 587, 608-610, 613, 618, 620, 631-634, 665-674, 676, 677, 682, 683, 685, 688-690, 738, 739, 772, 774, 784
U.S. Fish and Wildlife Service 7, 64, 92, 251, 263, 280, 281, 283, 284, 286-289, 348, 374, 398, 417, 418, 438, 465, 675, 745, 747, 752, 772
U.S. Forest Service 48, 60, 63-66, 68, 91, 102, 104, 226, 232, 263, 295, 313, 407, 411-413, 434, 437, 477, 510, 613, 655, 689, 709, 710, 711, 794, 798, 801, 802, 810, 811, 813, 814, 818, 820
Unauthorized use 39, 58-60, 102, 106, 244, 286, 430, 446, 453, 469, 490, 608, 736, 799
Valley sink scrub 22, 23, 82, 85, 86, 275, 319, 345, 371, 396, 414, 453, 456, 726, 745
Visual resources 45, 248, 304, 334, 358, 387, 672, 698, 737
Management 16, 40, 41, 45, 48, 78, 79, 81, 109, 115, 119, 123, 124, 126, 131, 133, 139, 143, 148, 153, 157, 160, 167, 172, 175, 177, 182, 184, 188, 197, 205, 211, 253, 306, 307, 338, 360, 389, 413, 431, 432, 467, 475, 478, 586, 607, 621, 672, 695, 697, 698, 700, 705, 706, 708, 709, 711, 712, 714, 715, 717, 718, 720, 722-724, 726, 728, 729, 730, 734, 796, 797, 799
Walker Pass National Historic Landmark 8, 9, 57, 188, 190, 192, 193, 197, 196, 202, 205, 207, 211, 210, 216, 217, 301, 307, 333, 337, 357, 385, 389, 494, 547, 677, 793
Water resources 24, 25, 43, 46, 88-90, 233, 238, 276, 278, 279, 297, 320, 321, 326, 327, 346, 347, 372, 396, 397, 408, 412, 509, 763
Waterfowl 56, 92, 118, 126, 133, 138, 733
Withdrawal 18, 19, 41, 59, 60, 64, 102, 107, 108, 115, 116, 119, 123, 124, 126, 128-130, 133, 134, 136, 139, 141, 142, 144, 150, 151, 153, 157, 160, 162, 164, 165, 167-170, 172, 174, 177, 184, 185, 188, 191, 193, 197, 199, 202, 205-207, 211, 213, 216, 217, 249, 251, 253, 256, 263, 304, 306, 307, 314, 335, 338, 342, 358, 360, 361, 365, 388-390, 393, 421, 427, 432, 443, 444, 447, 451, 469, 473-475, 519, 597-601, 634, 718, 735, 773, 796

GPO 688-408/79230

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225

R'S CARD
1993
: Land
akersfield
ce management
onmental

OFFICE	DATE RETURNED

(Continued on reverse)

HD 243 .C2 B35 1993
U. S. Bureau of Land
Management. Bakersfield
Caliente resource management
plan and environmental

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225